By Lisa Picarille and Craig Stedman

Calling Microsoft Corp. on the cy space carpet, Sun Microsystems Inc. is about to unveil a siew of hard ware, software and consulting services intended to simplify how users deploy internet and intranet technologies, Computerworld has learned. Tomorrow's announcement is de-

signed to stop customers from heeding the siren song of Microsoft's Windows NT-based 'net products. Onward and upward It also marks a strategic shift for Sun that expands the Mountain View, Calif-haned wendor's focus beyond

Sun spots intranet

Tool rollouts ease deployment, development of applications oplications based on Sun's Java pro-

emerging corporate intranet ar intranets are applications that make internal corporate use of the internet, with Web browsers as the

miktop user interface. According to sources famil its plans, Sun's rollout will include Solstice World Wide Web server software, an internet stall server, tools for developing enterprisewide

as of the company's Netra Web

ocement. But some users are

fficer at Burlington Cost Factory,

Inc. in Burlington, N.J., said Sun needs to make it easier to develop

eager for more details. Michael Prince, chief int

optications with Java and m Internet/intruset applications.
"We use Sun products for our in-tranet, but we've had to integrate a lot of things on our own," Prince said. "In some cases, Sen has com-plete offerings, but"it high't been packaged in a way that makes it nming language and 64-bit ver-

"lava development will be easier to deal with when the tools are better," said Walter Herrick, a systems inistrator at the University of California at Berkeley's Space Science Laboratory.

Some-industry watchers said Sun needs to make a loud and clear state

Airline turbocharges schedule efficiency

By Thomas Hoffman

The best on-time performance. The fewest customer complaints. The lowest number of lost bags. Southwest Airlines Co. has snared the U.S. Department of Transportation's coveted "Triple Crown" of airline service awards for an unprece-

dented four consecutive years (see chart, page 137). To keep a firm grasp on its No. 1 ranking, the Dallas-based sirline recently automated a gaggle of flight scheduling processes under an information systems project expected

to deliver up to 20-to-1 productivity And in keeping with its discor-

Airline, page 137

image, Southwest has so far spent a mere \$300,000 since February 1995 to develop its new systems. That's more than cost-effective when com-

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IBM ghosts haunt CEO

By Craig Stedman and Michael Goldberg

Lou Gerstner may have brought IBM back from the brink, but the company is still pay-ing for past mistakes and playing catch-up in the race for technological leadership. In the three years since he became chairman, Louis, V. Gerstner has changed IBM drastical and mostly for the better, according to intervi-

last week with two dozen users and analysts, and an exclusive Computerworld survey of 100 information systems executives at IBM shops But in areas such as client/server u

PCs, networking and mainframe storage, IBM is still struggling to make up for the time it frittered away before Gerstner arrived in Armonk, N.Y. IBM, page 14

NCR customizes data warehouses

By Jaikumar Viarran

You might call it Data Warehousing 101 NCR Corp. in Dayton, Ohio, this week will in-troduce a note-and-bolts program for every corporation that ever wanted to build a data warehouse but didn't know where to sta

The company will provide a menu of integrated hardware, software and services from which a custom warehouse can be developed. The pro-gram lets users scale up from small, relatively inexpensive prototype projects that start at \$30,000 to multimilion-dollar custom warehouses that contain terabytes of data.

"It's a great approach because it allows you to Data warehouses, page 137





Inside Computerworld

March 25, 1996

News

NEWS

Notebook price wars Compaq joins vendors slashing prices, making this a great year

to buy notebooks. Intranet-in-a-box With so many vendors beliew-ing about bundles, users can't

be sure exactly what's inside a carton marked "intranet suite." Networld/Interop preview Next-generation network build ing blocks will take centerstage at next week's trade show.

Novell's plans

At its user conference last week, Novell said it will make NetWare run on multiple platforms, and it detailed plans for going after the Internet market big-time

Object standards
The Object Management Group
selects a method of connecting corporate desktops to an object-oriented backbone.

Chicken Little was right When it comes to the year 2000 problem, Paul Gillin says, the sky is falling.

I Java, schmava

the Java hoopla. It's just a promming language, he notes. and there's no guarantee applets will play nicely together.

wernments will inevitably to to place restrictions on interne traffic - but it won't work, and it might even backfire, technology gutu lames Martin argues.

Unix fractures Fault lines remain evident throughout the linix communi



Choice Cuts

Some IS execs think OOP is the key to building successful applications. Others say no way. Who's right? See In Depth, page 101



While a new generation of client/server development tools promises to help extend client/ server applications to the enterprise. Borland's year-old Delphi is scoring points with developers at the workgroup level.



Paths to programming success! Author and CEO Gene Wang offers programmers valuable insight into what it takes to succeed and get ahead with his new book, The Programmer's lob Handbook. See Careers, page 107

Technical Sections

SERVERS & PCS

High-end servers, chear Aggressive seems to be the pric-ing watchword as Pentium Pro servers are announced SOFTWARE

IXII Notes-izing legacy IBM is making Notes part of the family by integrating the



AIG goes client/server The country's largest insurer hopes a contract it signed this month with Subase will help it maintain its competitive lead.

Review: Delphi 2.0 Delphi 2.0 makes it easier to build high-performance, scale irations for Windows os and Windows NT.

THE ENTERPRISE NETWORK ATM management tools
Cabletron and Fore detail soon to-come upgrades to ATM man

agement tooks 62 Banyan's Internet plans Banyan tossed a few interns related crumbs to users at the ABUI user group show.

THE INTERNET

Searching for search tools IS departments are looking for search tools, similar to Yahoo and others that tamed the pub-lic Web, to help make sense of

Hitachi plans to release a new Web indexing tool.

CORPORATE STRATEGIES Look, Ms. Broker - no wires!

Real estate nos who are testing wireless technoiney find it an effective way of keeping up.

Nasdag is using testing tools to prove the quality and speed the delivery of new applications



urity: Just say no

Features MANAGING

3 Year 2000 wees The Equitable is solving the year 2000 problem.

Bappy millennium! We list year 2000 user groups, Web sites and event

> IN DEPTH Object sound-off
> is OOP right for enterprise IS?

CAREERS Titl Client/server skills The right packaged skills will out you at the forefront of the

client/server job scramble. MARKETPI ACE

Client/server runaround IS managers have to deal with financial software vendors that skirt IS and go straight to the CEO to make their sale.

Etc.	
Company Index	13
Editorial/Letters	36,
Executive Track	· 1
Finance & Investing _	13
M	
How to contact CW	1
testde (less	21



IS YOUR BACKUP TOUGH ENOUGH FOR THE JOB?

is your critical data guarded by a puny backup solution that doesn't scale up? Backup Express™, new from Syncsort, is fast and powerful, designed specifically for today's distributed networks, where the data grows every day. Backup Express™ backs up and restores gigabytes of data fast-whether on UNIX, NetWare, or Windows NT. If you want a backup strong enough to keep your network data secure and bring it back fast, call us.

chers at Stanford University have developed a pair of mobile robots that

can wash windows, pick books off shelves and dust furniture - relatively delicate tasks by robot standards. Romeo and Juliet can perate on tasks that can't be done alone, such as mov ing large objects. The robots were created by Stan ford roboticist Oussams



Khatib and his students Their work is part of a National Science Foundation program aimed at designing brawny robot assistants for moving bulky objects under burnan upervision.

only meeting rooms across the country, small groups of software professionals gather after hours to discuss ways to improve their craft. The regional groups are Software Process Improvement Networks, or SPINs. Topics include programming tools and metrics, software quality

and testing. Some of the urban SPINs include the following

 Pittsbergh: Contact Dawna Baird at dhaird@sel.cmu.edu. (She's an excellent contact regarding the SPIN movement.)

Boston: Contact Donns Johnson at johnson@Giac.net.

 Chicago: Contact Kenneth Goncharoff at gonch@tellabs.com. Los Angeles: Contact Thomas Kudlick at kudlick@cpsn.es.serax.com

But this is just a sample. There are many other regional SPINs, and new ones are being formed all the time in cities from Fairbanks, Alaska, to Birming ham, Als. A complete list is available at the Software Engineering Institute's Web site, http://www.sei.cmu.edu/participation/spins.html.

These recently issued U.S. patents were gleaned from MicroPatent's Patent Server at http://www.micropat.com. (Number, inventor/assignee, date issued)



supervisors when an employee has worked beyond a certain time limit; can be used to prevent labor law violations. (5,497,14), Timecorp Systems, March 5)

ers that

An automated supermarket checkout counter that weights and scans a product and compares it with a database of product characteristics. (5,697,314, Jeffrey M. Novak, March S)

A system to monitor vehicle driver performance. An onboard computer collects performance data from several sensors to identify reckless driving habits. (5,499,182, Jeffrey Ousborne, March 12)

Send contributions of officest news, lists and anecdotes to mbetts@cw.com. COMPUTERWORLD MARCH 25, 1996 (http://www.computerworld.com)

News shorts Spyglass to stir browser war hting an image as an Internet also

run behind Netscape Communica-tions Corp. and others, Spyglass, Inc., plans to spice op its Web browser next th. The Naperville, Ill., vendor will unlock pieces of its Spyglass Mosaic browser so osers can snap in other ver dors' components for reading news-groups, sending electronic mail and

other laternet tasks. Netscape's Navigator allows ou pieces to be used, but the browser works best with Netscape's own piec ryglass plans to announce on April 15 a set of application programming inter-faces for building add-on modules for its

owsers.
Microsoft Corp.'s Internet Explores browser is based on Spyglass Mosaic, but that agreement will end with Version 3.0 of Explorer, which is due by midyear. In the meantime, "we want to distance ourselves from Microsoft and tscape," a Soyglass source said.

PacBell tries networks

Pacific Bell this week will kick off a service to belo customers plan, install and manage complex multiv What sets Pacific Bell Network Inte-

gration (PBNI) apart from similar ventures by regional carriers is its customized support packages. The first helps users link remote LANs to home base. The second helps users connect to the ernet or build intranet services.

"Targeting these needed packages oward particular custo them unique," said Truci Bair, manag of the network support and integratio services program at International Data Corp. to Framingham, Mass.

We wanted a single point of contact so when a problem hits our network linking 22 hospitals, we don't have to call five different carriers," said Fred Hassard, network communicat ger at Adventist Health in seville, Calif.

MCI, Netcom match pricing The Internet is starting to look like a eap diner, where the motto is "all you can cat for 20 bucks."

Last week, MCI Communication Corp. and Netcom On-Line Comm nications Services, Inc. each stunced dial-up internet access charges of \$19.95 per month for un

in recent weeks, AT&T Corp. and CompuServe, Inc. have also price their Internet offerings at \$19.95 per

month for unlimited usage. "This pro vides more people with immediate access and means to get on the internet," said Gary Nielsen, manager of marketing programs and special event at Ford Motor Co. in Detroit For more News shorts, sée page 8



turn-by-turn navigational system from Siemens Automotive will be installed in some luxury rental cars this summer. TetraStar (pictured) uses global positioning satellites, a gyroscope and an onboard database of roads to give drivers directions to their destinations.

Digital Frontiers

buildings you leet across the street.

But the Broxx, R.Y., hospital couldn't dig
up the street to lay cable, and it couldn't ru

cables among the buildings, says M stalled a la on LAX. The wireless LAX from I or. Pa., uses i ons for line of night data tra

ith says the laser LAN was cheaper th wave technology and didn't require n ly licensing to be installed. Better yet, out interruption





To Do Business On The Internet, Just Add This.

it's that simple. Thanks to a new product from Computer Associates called CA-OpenInger/EUT2 ion on ayuser can have access to a robust, retable and manageable Internet infrastructure. In one quick step, your company can become a globally connected enterpties. ICE straints for "Internet Commerce Enabled". That is a fanny way of saying, this software is designed specifically to handle the unique requirements and failinges of the Internet.

CA-Openingres/ICE is an HTML-enabled relational database that's been optimized for Internet use. So now, corporate Web applications can be created amountacially with methodel HTML access to both server and host-based data sources. And CA-Openingres/ICE's adaptive query management delivers maximum performance, an important capability given the dynamic nature of the Internet. There's also an industry-leading replication facility that provides consolidation and dissemination of corporate data through the Net and fault tolerance for your Web servers. In addition, the integration with CA-Unicenter/ICE offers intelligent agents and graphical administration facilities that make CA-Openingsey/ICE self-manageable. It's the database englier that finally less the Net get down to business.

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Laptop prices slip, slide

Compaq jumps on bandwagon; users wait for pressing need

By Mindy Blodgett

This is shaping up to be a great year to buy notebook computers. Compaq Computer Corp. last week joined the growing list of vendors that are cutting notebook prices when it slashed the price of

midrange offerings by 28%. Pundits stopped short of calling it a price war, but it certainly looks like a buyer's market as prices could drop even lower. Howe users shrugged off the news, saying their purchases will be based more on internal business needs

than plummeting prices - much the same view they took on desktop price cuts [CW, March 11]. In the past two months, IBM PC Co., Digital Equipment Corp., Texas Instruments, Inc., Toshiba America Information Systems. Inc., NEC Technologies, Inc. and Hewlett-Packard Co. have annonneed price cuts - in all price ing levels and product lines -

ranging from 5% to 20%. Apalysts and vendors said many notebook makers are clear-

ing out inventory, ramping up new lines - including new ultraportables - and migrating to faster chips.

Vendors are also grabbing for market share in an increasingly competitive market, analysts said rbook makers last year faced a softer market than expected and a difficult transition to Intel

Corp.'s Pentium microprocessors. Sales growth for notebooks was a relatively sluggish 15% last year. In contrast, analysts from Data quest, Inc. in San Jose, Calif., Inst. week predicted the notebook

market will post a healthy 30% gain this year. As new players such as Hitachi PC Corp., Fujitsu Ltd. and Sony Corp. enter the fray. the battles will grow even more fierce, analysts said. "We haven't seen anything yet" in origing, said Bruce Stephen, an

analyst at International Data Corp. in Framingham, Mass. "It's going to get a lot messier. There

will be more of this price compression as everybody lockeys for position."

Users said the price cuts are wricome, but they said they will buy notebooks only when there is

a pressing need. Twe been monitoring the prices," said George Staton, assistant vice president of Commerce

Bank in Cherry Hill. N.J. "Certainly you'd like to get the most for your money. But the business units drive this buying now, not the information systems department]. So when they want notebooks, we but."

Kevin Danahy, man workgroup application development at Millipore Corp. in Bedfeed. Mass., agreed. Nevertheless, be said, it's nice to be in the driver's sest when it comes to oricine

2.4M 11% 12% 84% 994,000 9.8% uff3.000 0.0% 6.7% 7% 8 6M

"We're certainly getting better notebooks for our money," Danaby said. "And we've learned our on here. Notebooks now depreciate after about two years, an we turn them over a lot." Compaq's price cuts are part of

a corporate strategy to halt a sales slowdown across its product lines. Much of Compaq's troubles came from depressed portable sales, which account for less than 17% of again on its once-vaunted ports ble lines. corporate revenue. That is down from 35% in the early 1990s. Compaq had a commanding

lead in the notebook market but was overtaken by Toshiba. It's fair to say we have tal our eyes off portables a little bit. said Eric Shuster, portable prod net marketing manager at Com-paq. He said the company had focused on its server and desk-too lines but is bearing down

O Upcoming Pentium servers are aggressively priced. See DREEAS

Users warned: Intranet suites run the gamut

By Kim S.-Nash

The notion of an intranet suite a software and/or hardware busdle intended to give information systems departments an instant intranet - is all the rage among rendors lately. But an intranet-ina-box is a little like a inck-in-thebox: You don't know what's going to pop out when it opens.

Silicon Graphics, Inc. (SGI) introduced a suite last week. World

Wide Web server maker Process Software Corp. is expected to an nounce one next month. Smaller vendors, such as NetManage, Inc. and FTP Software, Inc., also offer such sets. Since no two are alike, rs need to be on their toes. There's a real difference in

terms here that can be confusing if you don't watch out," said Cecil turray, an independent contractor helping to build several intranet applications at Georgia-Pacific

For example, SGI's WebForce Intranet includes the company's Unix machine and a Netscape Communications Corp. Web serv er. But the suite has no firewall, an essential security prerequisite for

internal corporate use of the pub-Different approach NetManage in Capertino, Calif.,

meanwhile, takes a different, more desktoporiented tack. Its Chameleon suite includes electrooic mail a Web browser and a handful of other utilities - but no

But before users even start to compare the suites, they need to decide whether a suite, vs. a best-of-breed strategy, is the best approach to building their intra-

Vendor-configured suites by definition rarely combine the best products in each category, said Gordon Benett, s lead consultant at Web consulting firm Techne Group in Waltham, Mass.

An intranet suite is "OK, as long as your company is not locked into a single group [of products] that cannot be changed later," said a Web coordinator at an Indianapolis firm that is building several intranets for the U.S. Army and the Department of De-

Murray agreed: "I don't want to

be wired into one vendor's view of what an intranet is." But for some users, it eites are just plain easy. You deal with one vendor, one su

center and one price," said Mat thew Cutter, founder of the Web masters Guild, a Cambridge Mans-based professional group for Web workers. Those users who opt instead for a suite should look for the fol-

lowing features, analysts said: Integration. The operating system, Web server and administra tion utilities should be sware of one another an they can be mon tored and managed as a unit · Simple support. If a vendor resells another vendor's product, make sure you know who is ac countable when trouble starts

share conference, has issued the following clarification: "Mi-crosoft was not limited to 10 at-

tendees - they were allowed.

· An escape hatch. Sets that let users susp in different datab eva roup in different databases, essaging systems, workflow kages and even Web browsers and servers are the most flexible.

A Web database serve bows. See page 73.

Clarification

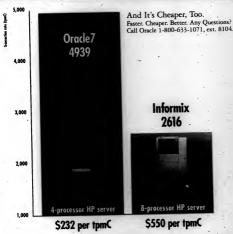
Novell, Inc., which didn't com- to send 25 registered attend ees to Brainshare. This is the ment at press time on an in-side Lines item two weeks ago meximum number we allot to regarding the number of at-I companies." The Novell spokesman sa idees Microsoft Corp. was slowed to send to the Brain-

this was a departure from No-vell's previous policy, which limited other vendors to sending only 10 people to Brain

\$12,500 \$12,995

How suite it is

Oracle7 on a little HP server is faster than Informix on a big HP server.



The TPC.C® is the industry standard test for measuring database On-Line Transaction Processing (OLTP) performance and price's performance. Benchmarks published by Hewlete-Reichard show that Oracle? on a small 4-processor HP server runs faster than Informix on a larger 8-processor HP server. Amazing. And because Oracle runs so fast on a small computer, you have an opportunity to saw lock of moory as well as a lot of time.







Expo touts tools to build next-generation networks

By Bob Wallace

The noise from the show floor at world/laterop % next week in Las Vegas may drown out the din from the casinos, as vendors unveil wares that let users build

et erneration networks. These products will be chesper faster, more powerful and more flexible than

today's network building blocks. Cabletron System Inc. IBM Novell Inc. Ontical Data Systems, Inc. (ODS) and Bar

Networks, Inc. will lead the charge with a broad array of offerings, some of which will be availshie in two months. · Cabletron in Rochester, N.H., will outline its plan for SecureFast Virtual Networking, which will let

users build virtual networks. With virtual networks, routing stelligence is built in to the switch, which obviates the need for routers. This can cut costs and

olife network administration. The software/hardware up grade will enable Cabletron's existing switching hubs and standSecureFast Virtual Networking. Cabletron will also push Verzion 4.0 of its distributed Spectrum platform. Spectrum users will get an enterprisewide view of the network for key management applications, an NT-based server

tioo and reports accessible via the Web . IBM in Armonk, N.Y., and Novell in Orem, Utah, will soint

ly announce NetWare for SAA for IBM's AS/400 minicommuters, which essentially is an improved version of Novell's TANAM nicomputer software

IBM sources said the package will be easier to use and configure and will cost less than half as much as its predecessor. The firms are moving to a per-user, in-

stead of a per-session, pricing structure but didn't offer details. With the old pricing structure. Ithe package! cost roughly four times more than Microsoft's SNA

Server package," a Novell source nowledged. The software designed for

in two months. · Hewlett-Packard Co. will up veil the long-awaited distributed architecture for its OpenView

platform. This version will scale to cover very large networks. HP opes to ship it by June •ODS in Richardson, Texas, is preparing the Massively Parallel

ATM Matrix Backplane, a 41G bit/sec. switching labric designed to eliminate network bottlenecks that some users have encoun-

tered when using ODS' Infinity switch for LAN switching. lives can upgrade their Info ity switches in the field for \$3,300

according to ODS. The vendor will announce a variety of LAN switching modules that will give users high-end switching at low end pricing (see chart). For example, a new in module slashes the price of the wndor's Ethernet switching from

more than \$700 per port to about \$300 per port. The switching hub wendor also will lay out its multifaceted virtual networking blueprint, which anslysts say will position ODS well against Cabletron, Cisco Systems,

inc. and others. Bay Networks in Billerica. Mass, is expected to burst onto the scene with a line of laternetrelated products designed primarily for large corporate users and the swelling ranks of interpet ser-

Sources said Bay also will an ounce a brage deal to provide its high-end Backbone Concents Node routers to Advanced Network & Services, Inc. (ANS) in Elmsford, N.Y., which is owned by America Online, Inc.

ANS runs a national 45M bit/sec. fiber network that makes up part of the Internet. The Bay routers may allow ANS to provide cheaper laternet access services.

Optical Data Systems' ambitious	Pate Switchist	pun
weeks .	Peace /	MANAGEMENT PROPERTY
EINERNET SWITCHING	MODELES	
12 switched Ethernet ports with ATM Matrix link	\$11,995	April
32 switched Ethernet ports	\$9,600	June
24 switched Ethernet port, 2-port 1008ase-T Switching Module	\$9,100	june
12 sooBase-T port full-duplex switch	\$7,200 -	June
Almas, modul	6	
12 ATM35 ports, 1 155M bit/sec. connection	\$11,995	April
32 ATM25 ports, 1 155M bit/sec. connection	\$15.095	October
TOREN RING SWITCHIN	MODULE.	
6-port Token Ring switching interface	\$13,275	April
FDDI SWIFERING M	DDULES	
1- to 8-port FDDt modules	\$11,925 to \$16,425	April

News Shorts

Judge confirms CA's RICO violation

A New York State Supreme Court judge last week upheld a ruling that Computer Associates International, Inc. must pay a \$12 million arbitration award to four software developers. Last September, an arbitration panel found that CA had violated the Federal Racketeer Influenced and Corrupt Organizations (RICO) Act and had fraudulently concealed transactions related to the Data Vantage application tool to avoid making royalty payments to the developers. CA said it plans to appeal the decision

IBM to rescue AT&T workers IBM has agreed to pick up 3,000 AT&T Corp. workers who were to be laid off as a result of AT&T's solit into three companies. IBM

made the offer as part of a 10-year, n-dollar con tract for its Integrated S tions Corp. to manage AT&T spin-off Lucent Technologies' in-house computer

Cisco adds ATM features Cisco Systems, Inc. last week moved much closer to bringing Asynchronous

Transfer Mode (ATM) to the masses by uncing an ATM interface for its midrange 4500 and 4700 routers. With the in-COMPUTERWORLD MARCH 25, 1996 Details

terface, users with Ethernet and Token Ring LANs will have access to ATM ortworks. Until now, ATM interfaces have heen available only on high-end Cisco routers. The interfaces cost \$12,500 and are shipping

Compaq to integrate DMI Compaq said it would integrate Desktop Management Interface (DMI) 2.0 into its desktop and server management utilities eventually replacing its own specification.

Compaq cuts server prices Continuing its drive to maintain market

share Compage Computer Corp. last week reduced prices on its low-end server line by as much as 10%. Compaq cut the price of an entry-level ProSignia 500 server from \$4,439 to \$3,999. Compaq. in

enced several Pentium Pro upgrade offers as an inves protection for current purchasers of its high-end ProLiant 4500 server line.

Microsoft to ship Exchange Microsoft Corp. will start shipping its

Exchange Server before the end of the first quarter, as promised. Microsoft will ship pieces of the messaging and group ware package this week, although Ex-change woo't be announced officially until next week's Networld/Interop '96

IBM cuts wireless deals

IBM reached agreements with sever mobile service providers to affer one-stop wireless shopping to users. Agreement with companies such as AT&T Wirele and Ericeson Corp. mean that IBM can offer end-to-end programs for wireless communications implementations, including planning, design and manage-

AT&T plans internet Notes AT&T confirmed last week that it will

support Lotus' Notes as part of its World-Net Internet offerings this year AT&T dumped its proprietary Network Notes service last month but said it would still work with Lotus on development issues and look to include Notes services as part of ATAT's Internet services

Cabletron joins \$18 club Reseme at Cabletron Systems, 1

reached \$1,060 billion in fiscal 1995, a 32% jump from fiscal 1994 for the Rochester. N.H., switching hub maker. Net income

was \$216.7 million, up from \$162 million

IRM's rolls out OS/2 browser IBM unveiled an OS/2 World Wide Web browser that supports Java; the Internet

development language from Sun Microsystems, Inc. The browser, dubbed of WebExplorer with lava, lets users deventoed and run

the same Java app lets that run on Sun's Hotjava bro and Netscape Navigator 2.0 from Netscape Communications Corp. in Mc tain View, Calif. The Java-enabled Web-Explorer requires the OS/2 beta version

HORT TAKES Microsoft gave Internet abilities to its Access database. Mergent International, Inc. in Rocky Hill, Conn., and Utimaco Safeware Group in Oberursel, Germany, today will announce their merger... Digital Equip-

ent Corp. this week will introduce ClearVISN, the first products to man its enterprise virtual intelligent switch network architecture.

Data Warehouse Comparison

Data warehouses are central information repositories for storing and analyzing vast amounts of historical and reference data from a number of different sources. Oracle? has many more features for data warehousing than any other DBMS.

Features	ORACLE7	Sybase System 11	Informix 72
	Lots	Zero	None
	Yes .	Not Quite	Yes
	- Yes	No Way	No
	Yes	Nope	Yes
	Yes	Yes -	Yes
	Yes	No	Yus
	Yes	Never	. No
	Yes	Nope	No
	Yes	Yes	- No
	Yes	No Way	No
	Yes	· No	No-
	Yes	Sorry	No
	Yes	Hyst	. No
	Yes	Not	Yes
	Yes	Never	No



The Oracle data warehouse provides fast query access to all your data: relational, spatial, text, images, sustio, video and instant muticilimensional drill-formational state of fast, accurate decisions are important to your company's performance, call Oracle at 1-800-633-1071, ext. 8197. Or download videos explaining the Oracle Warehouse at happille was worsele com/info/de/wideo-barml.

ORACLE*

'net to dominate client/server conference

Products, strategies will be on view in Boston will take center stage at this week's Data

Re Iulia King

base and Client/Server World conference in Roston To no one's surprise, almost every exhib-The Internet and the World Wide Web iter is either unveiling or demonstrating in-

than a dozen and software executives will sprak on Internet topics, such as using the

Web as an alternative to groupware and de-

merce applications. On the applications side, vendors, include

Lawson Software in Min ocapolis and Software 2000 in Hyannis, Mass., will demonstrate how to access client/server systems via

hower-based clients On the development side will be products for building Web-based server applica tions that require no client software.

This is by far the more interesting as pect of the Internet and applications ... [because] it makes applications develop and deployment a lot easier and a lot less expensive," said Richard Finkelstein, president of Performance Computing, Inc. in

For example, users can deploy server-based applications to multiple desktop de-vices, such as Windows-based PCs, Macintothes and Unix machines, without having to write different types of client code.

erver navings interance costs also decline sharply be se system upgrades and changes are de only to a server and not to each indiusl client machine

em, it only has to be "If there is any probl fixed in ooc spot. You don't

have to renovate PCs. You also get rid of the problem of up grading hard

ware and operat-

ing system soft-

ware every two

years," Finkel-

stein suid.

Also at the show, JYACC. Inc. in New York

will showcase its est It lets lam/Web devel users build and deploy server-based applions that automatically generate Hypertext Markup Language for display on any

type of browser software.
What differentiates the Jam/Web development product from other Web applica-tion tools is its ability to work with any browser software and database, according to JYACC. Jam/Web is acheduled to ship in

April at a price of \$2,400 per developer. Empress Software, Inc. in Toronto will unwrap Empress DataWeb, a Unix-based set of point-and-click tools for developing Web pages and archiving data oo cust ers and other users who visit a Web site

The kit consists of the Empress rela al database management system, Emprese Hypermedia authoring software, SQL Serv er software and the Apache Hyper Transfer Protocol server software. Th

software comes on a single CD-ROM, which costs \$997 ernet-capable forms are on the way from letform. See page 57.

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Transforming Enterprise System: MICRO FOCUS'

Novell recasts itself as Internet guide or detail how it will sell the "new

Fills in NetWare gaps; licenses Java, OM-Secure Link late a cobesite plan of execution

By Lisura DiDio ALT LABS CITY

it's back to the future for Novell. Before an enthused crowd at its oual BrainShare conference last week, a newly unlettered Nowell. Inc. again repositioned itself as an internet company instead of

cations services firm. Yowing that cyberspace will oot be owned by "one" compa thinly wiled reference to Micro soft Corp. - CEO Robert Frankenberg declared that the "laternet is LANs, and no one knows LANs like we know LANs.

Frankenberg touted the first server license for Sun Microsysterrs, Inc.'s Java scripting technolony as well as a licensing and de-

Market, Inc.'s OM-Secure Link electronic commerce technology in NetWork

He also ticked off five key initiatives that would give users a onestop solution. They include making LANs smart by enhancing NetWare, interconnecting emark networks, standardizing developer interfaces using Net2000, providing rich network access using GroupWise and its feature set. and deploying NetWare Embedded Systems Technology to ex-

tend network connections beyond notard LANs and PCs. Users and analysts said the anmovements filled in many of the ours in Novell's tactical strategy most potably direct links to Wasws NT Server. But they com

Novell' beyond its installed bose "In terms of try ing to create a directory that ties multiple environ

together. they're not doing that. It's good to put Java on NetWare, but it [doesn't] solve the longer fundamental busi ess problems Novell has," said Jamie

Lewis, president of the Burton Group. Still, some use said they were glad

that Novell is on the move aga - even if the moves at this point are defensive maneuvers to catch up to Internet service providers such as Netscape Communications Corp., according to John Olisik, an analyst at Forrester Research, Inc. in Cambridge, Mass. -Forging links to the Internet

By Patrick Devden

work traffic data

console

flows and fe-ups this week.

"missing link" in Remote Monitor-

ing (Rmon) and troubleshooting

Intelligent collection point for net-

ers reportedly will be able to re-

- maybe too many, said Brian

Burbo, an analyst at International

Data Corp. in Framingham, Mass.

box into several network sites and

link them all via the Web for direct

they're siming high. It will be

quite an accomplishment if they

reporting," Burba said.

it's a great idea to drop this

and extending [NetWare Directores) to run on other platforms is key for us because we need to link our local deaktops to remote databases

and servers, and the Internet is the way to do that in the future," said Steve Austin, MIS director at Heli-

and shared across the network. To address the electronic com-merce market, Novell will inteinc. in Orange, Minnees · represent the first steps

te OM-Secure Link with its NetWare Web Server. This will give users security on the Web. The company also launched to in moving Netalpha version of its Net2000 API initiative. Net2000 gives develop the client/server model, Frank ers an easy way to write NetWare berg said. His plications across multiple platforms. It can also run Visual Basic pine is to move

the enterprise.

Mark Herder, manager of da mmunications at the Dart-outh Hitchcock Medical Center in Lebanon, N.H., said if Novell doesn't deliver on the Internet and the Net2000 initiatives as well as maintain support among appli cations developers. "they won't be

a secure infrastructure for the

next generation of application

servers and easy access to orga-

nized information anywhere on

In this new client/network

model, NDS and the Net2000 ap-

plication programming interface (API) will allow Java applications

to be accessed, stored, managed

velopment pact to embed Open plained that Novell did not articu-GroupWise XTD hits the beta trail

By Tim Ourliette SALTLANECITY

you have to log in to certain serv-

At last week's BrainShare '96, No vell, Inc. provided users with their first glimpse of GroupWise XTD, which is now in limited beta

The Provo, Utah, company hopes improved adm and the inclusion of document

management and workflow feaupgrade from their current GroupWise 3.x

and 4.x installations. GroupWine 4.1 is messaging software hased on file-sharing architecture, which,

like competing products, can become unwieldy when scaling to large enterprises. GroupWise lags in third place in the LAN memaging market behind Latus Development Corp.'s CC:Mml and Microsoft Corp.'s Mail.

XTD, based on a client/server architecture that frees up the client from much of the mensageomerwing duties, is the upgrade path for 4.1 users.

At Auburn University, where the number of GroupWise users is 300 and growing. "the new (consolidated) administration features are something we are looking forward to," said beta tester Brian Anderson, an information technology specialist at school in Montgomery, Ala. "As it is right now, GroupWise adminis-

ers to do certain tasks. One new linking tool will auto tically link a new GroupWise XTD mail domain with the domains already on the network This currently is a time-consu ing process done manually by

GroupWise administrators. The single point of administ tion for both the actwork and GroupWise XTD will help cut the cost of ownership for users, according to Eldon Greenwood, Novel's groupware product

manager. But elec-

tronic mail adminis trators may have to brush up on their Net Ware. All of GroupWise XTD's admin istration will take place from with in the NWAdmin application in NetWare, making use of NetWare Directory Services. In fact,

GrantWise XTD users will get first crack at the administration module found in Novell's Net-Ware upgrade due this fall. The module will ship as part of XTD. Right now, Novell has to get the

product out the door. Letus' Notes 4.0 is on the market, and Microange is due oext week. GroupWise XTD is slated for delivery by midyear, though sources expect that to sup slightly to late summer or early fall, especially with Novell predicting a four-to six-month beta period.

versal services. Frankenberg said. Novell'a ambitious client/ network internet blueprint calls Remote Monitoring gets distributed Technically Elite adds 'missing link' to cover big networks

to a "service model" and form a

To achieve this goal, Novel

must embrace an open architec

ture that delivers a Universal cli

est, a Universal network and Uni-

post-client/server architecture.

can pull it off."

With DomainMeter, those re Managers of widespread client/ sponsible for boodreds or thouserver networks will get a powersands of network segments reportedly can designate Rmon ful new way to monitor traffic collection points to gather, filter and act on each negment's perfor-mance data. As a result, central Technically Elite, Inc. in Camp bell Calif. will unwil a PC-based turnkey product called Domain-Meter 7000. Some call it the

stors won't get over whelmed with too much date. This is the missing piece of th non puzzle," said Greg Cline, ditechnology because it provides an rector of network integration and gement research at Busioese Research Group in Newt Mass, "Users have needed Rase Furthermore, network managagents that scale so they can es

trieve traffic reports via the World tablish domains to distribute man Wide Web rather than through an agement for their octworks." expensive network management Founded in October, Technical hr Elite is the result of the merger of Network Application Technology and Technology Elite Con-Technically Elite has identified cepts, Inc. and the companies and addressed a lot of problems Rmon probes and agent software. Guiding the westure is Pres

and CEO David Norman, founds of Businessland, Inc., Date Inc. and Creative Strategies Inter national, Inc. DomainMeter's "super probe" earbers Rmon utilization statistics from stand-slone probe devices

repository, expert system and monitoring application on a Pes-tium server, which users can congure remotely.

"We need this kind of scalability to menitor 273 subnets with 25,600 oodes," said Milt Mallory petwork specialist responsible for performance analysis at Stanford University in Stanford, Calif. "We can't do everything from one box. and we need the redundancy of multiple boxes around campus to her data from probes and

working gear. It provides a data

DomainMeter 7000 also car poll devices that report via the Simple Network Management Protocol, Norman said. This lets managers combine diverse data in unique reports that could help them monitor, for example, the ration of a specific router path. And DomainMeter has enough native intelligence to take action locally and automate mas agement tasks, as well as pass up

rts to central administrate The packaged monitoring sys-tem costs \$6,996. It requires Technically Elite's MeterWare wais software for Windows and Unix-based systems.

COMPUTERWORLD MARCH 25, 1996 (Mp.//www.com

PeopleSoft and Sybase

just connected.

have the

and nem

Bully for him!

Sweet remance.

Ball's stock pelce hit a
fore-year highe d \$128.00 is hite.

February, amid a general upsurge of high-tech issues.

While the stock has fallen about
10% since then, the company's
formacing picture is a constituent
suray from the days when
Lank W. Constituent was a fall of the
Lank W. Constituent was a fall of the
Lank W. Constituent to the constituent

1963.
Pinencial analysis say Gen ner has made some smart moves, including catting con

and sicing a breakup plan.

A reinvigenated IBM is also devoting more resources to professional services and builting next-generation maintenancing CAGS technology. Bed great provided revenue growth the twee and could continue.

hat trend this year For example, ervices grew 31%, a \$12.7 billion, in 996 and became BM's secondingent revenue center. And hard-

Hion.
Looking toward stare areas of trength, analysis ad outced views. I wouldn't any that BM is in a real andership position

t with some of interesting ings going on in a laternet or with rancts," said artin Ressinger, analyst at Duff Phelpo Investent Research in hicago. "But

PROFIT/LOSS

there's a lot of [IBM] hardware out there." One of IBM's key strengths remains its trusted brand name with

arge companies looking to buy lependable depar timental and interprise servers. Even the BM PC Co., which has been a serensial weak area for the true, is showing growth potenial with its emphasis on higher-

- Michael Goidher

Life with Lou

Key events during Louis V. Gerstner Jr.'s years at IBM



MARCH

ISM names Gerstr replace John Aken chairman

Gerstoer halts Aken's to break IBM into as omous utilis AUGUST

IRM takes \$8.9 billion structuring charge; arms as plans to cut 60,000 workers by end of 195

SEPTEMBER
TO Bee management com-

inter couled to overser oper-business integration and product plans ECEMBER

CMC

merganizes sales and service operations int wertical industry units

IBM ghosts haunt CEO

CONTINUED FROM PAGE 1

"Three years ago, you mentioned IBM and everybody looked at you like you were talking about a disonaur," said M. Lewis Temares, chief information officer at the University of Miami: "Now they're in the same boat an everybody eise. But that doesn't mean you exclude the Suns or the HFs or

There is almost universal agreement that
EBM is better off todry both financials

REVENUE cally — than it was

cally — than it was before Gerstner's hiring. The former RJR Nabisco executive gets widespread crefit for cutting

costs, shaking up the complacent IBM culture and forcing its different divisions to work in relative harmony. He also caught a major break when the mainframe made its recovery in 1994.

Suty-eight percent of users surveyed by Computernorld said Gerstner has been effective at improving IBM's 6nancial beath. But only 48% rated Gerstner as effective in leading IBM intonew technology areas, and inst 28%

said be has done a good job of sharpers ing the company's customer focus—one of his top priorities. Interviews with users and feedback from the survey point to several areas where

o'The Internet and corporate intranets are great opportunities, but IBM's technology and market presince have lagged behind rendors such as Sun Microsystems, Inc. • Despite in June 1965 acquisition of Lotus Development Corp. and its Notes group-

IBM still faces demons:

ware, IBM has yet to prove it can become a heavy-weight in client/server software. • Service and import remain sore spots for a significant percent of customers, who are feeling the pinch of IBM's staff cuthacks. And customer brighty has been frayed by IBM's missteps in key areas such as staffframe storage and networking hardware.

Survey supports net strategy
A majority of survey respondents agreed
with Gersteer's much-publicated contention that the Internet will shift the market
book toward large servers. But some usery
and analysts said that doesn't necessarily
mean IBM will be the first choice of cost

tomers (see story at right).

For example, Brigham Young University in Prove, Utah, plans during the next five years to move from a mainframe to a citent/server setup with Unix servers and

PCs with Internet access. "I could go to lots of places for that technology," said Kelly McDonald, executive director of university computing services at the school. "At this point, I wouldn't say we automatically look



The Eagle soars.

By Craig Strdman

Project Eagle, IBM's long-promised attempt to make its client/server software less expensive and easier to install, is finally ready to leave the nest.

Six months behind schedule, IBM this week will introduce a multiplatform line of IBM Software Servers that combines almost 60 products in seven integrated and presented packages designed to take on Microsoft Corp.'s Windows NT-based Res/differ units.

The two suites are similar in scope, although Microsoft lacks a transaction manager and a groupware server that matches Notes. IBM also is making it easier than Microsoft does for customersto use rival products alongide in serv-

ers, analysts said.

Code-named Project Eagle, IBM's suite includes servers that handle Notes, databases, transactions, internet access, communications, systems management

and directory/security. The bundling is a key part of IBM's strategy to shed its lightweight status in the client/server

"it's not like there's any technical innovation here. It's just a repackaging," said Saity Canack, an analyst at The Standish Group International, Inc. in Dennis, Ber Project Eagle at least make, Markey products ensier to buy and install.

whe sided.

Until now, the job of integrating the client/server versions of IBM products such as CLCS and DBC had fallen squarely on customers' shoulders. "That can be a real challenge," and EB Wehner, manger of business information systems at MEMC Electronic Materials, Inc. in St. Peter's, Mo.

"You buy one piece from here and one piece from there, and there are a lot of places where things can fall apart., Webner said. Different IBM units were also quick to blame one another, he added.



to IBM for any solutions."

IBM has received similar responses from other customers who couldn't wait for the firm to deliver competitive products and

turned to other vendors instead. Edward D. Jones & Co. stores all 3T bytes of its mainframe data on EMC Corp. disk arrays and still considers IBM as "trail-ing in that market," said ClO Rich Malone. Likewise, the St. Louis brokerage turned to Sun and Oracle Corp. for a client/server system that it is rolling out at its hendquar-

ters and 3,200 branch offices. *Back when we first did the architectural work, IBM wasn't strong in client/server. Malone said. "If I was starting now, they might be a player. But I stready made my

One of the key businesses in which IBM has long fallen short is client/server software Gerniner has made changing that a top priority, as evidenced by his acquisitions of Lotus and Tivoli Systems, Inc. He also put developing for Microsoft Corp.'s

Windows NT on par with IBM's OS/2 and AIX operating systems. The grudging embrace of NT showed

that IBM "has started to become more pragmatic," said Judith Hurwitz, president of Hurwitz Consulting Group, Inc. in Newtoe, Mass. But IBM still needs better star-

keting and channel support for its software. For all its attempts, IBM still falls a dis-tent second to Microsoft in its perception as

a technology innovator, according to the rworld survey (see chart). Micro soft also is seen as the biggest threat to IBM because of its begrenony on the desk-top and the potential of Windows NT to grab a big chunk of the server market.

"Microsoft is the IBM of 20 years ago," said Sob Barone, vice president of informa-tion technology at Broadcast Music, Inc. in New York. "We've always been IBM bigots. (But) now, with this more PC-based type of environment, I just haven't seen them take the lead."

of the survey respondents said IBM's ser-vice and support have gotten worse during the past three years, when IBM cut its field and increased fees.

Most users said there are fewer IBM more users stant trere are lever IBM sales representatives and service engineers to go around. But several users said the lack of bodies has been offset by a reduc-tion in IBM's bureaucratic bloat, which al-lows for quicker decisions.

"BM is more proactive and can move such faster," said the University of Miam's Temares, who recently negotiated an inter-net access deal with IBM in less than a month. The school earlier had settled on a long-distance carrier, "but they just didn't

Gerstner "certainly gave [IBM] a good wake-up call," added Sam Albert, a consul-tant in Scaredale, N.Y. "Now comes the real challenge of producing new rever ms to replace the old IBM."

Bitten by the net

finally!

IBM also is adopting a single prick format across all of its servers. Includ ed will be a switch to concurrent user licensing, which was prompted by cuttomers complaining that straight per-seat pricing became too expensive as tions grew in size

Although customer letters detailing the Project Eagle servers have already been posted on IBM's World Wide Web page, pricing remains a closely guarded secret. Sources at IBM said sey will cost less than the sum of their parts, but analysts noted that customers don't always need all the pieces that come with the servers.

OS/2 and AIX versions of the Proj ect Eagle servers are already available or will ship in early May. IBM is initial ly announcing Windows NT support only on Notes and its database and in ternet connection servers. The other four will get NT support late this year or early next year, officials said.



OMG picks OpenDoc, puts users in quandary

By Frank Haven

ow will corporate desktops connect to an object-oriented enter-prise backbone? The answer to at question got murkier last week as the Object Management Group consortium of vendors and ers selected OpenDoc as its erred way of linking desktop applications with enterprise ob-



OpenDoc, a system for assem bling software components into applications, is being developed IBM and Apple Computer, Inc. for the Windows, OS/2, AIX and

Mac OS operating systems. But most corporate informa erstems shops already have a standard for connecting softwar components: Microsoft Corp.'s OLE, which is built in to Win-

The OMG's choice of Open Doc puts some users in a bind. "I like the technology of OpenDoc, but the de facto tool that is commonly used on the desktop is OLE," said Hide Horischi, architecture planning manager at AT&T Corp.'s

Wireless Services division in Kirkland, Wash. During the past two years,

Intranets

CONTINUED FROM PAGE 1 ent about its commitment to the Interpet. The key is to have real

products to show. See can't rest on the laurels of Java," said Sylvia Clark, a senior analyst at Aber-deen Group, Inc. in Boston.

What lies about Sources said the country's Sur-Soft division will try to build on Java's burgeoning popularity by introducing the following prod-(CW, March 4). • Solaris Internet Server will officially be unveiled at Networld/ Interop '96 next week in Las Vegas, but Sun executives will pre-

view the software tomorrow at press conferences in New York and San Francisco. The Internet server was designed to deploy Web sites and

Windows NT. e Internet Workshop 1.0 is a bungroupware business applications on corporate networks and the Inded development environm COMPUTERWORLD MARCH 25, 1996 (http://www.computerworld.com)

large enterprises have used OMG's Common Object Request Broker Architecture (CORBA) as a standard for building objectoriented enterprise petworks. Most users expected to use Windows-based OLE on the desk-ton and CORBA for higher-level services at the network level, said Tom Hein, manager of technology

integration at Deere and Co., a sy-equipment maker in Mo-

OMG in Framingham, Mass., is working on a standard way to link OLE to CORBA-based networks. But Microsoft has been dragging its feet in providing some of the ferbaical information needed to create that specification (CW.

Feb. 121. In the meantime, the linking of OpenDoc with CORBA will give users an alternative approach for linking OLE components and ap cations with CORBA networks. OpenDoc will be modified so that applications developed with it

can be linked to CORBA networks. OLE components can be used in OpenDoc applications. said Steve Mills, general manager at IBM's Software Solutions division. The resulting applications also will be able to interoperate with CORBA applications and services on operating systems that don't

support OpenDoc. Are objects right for every one? See page 101.

OLAP integration

BusinessObjects ties in query, reporting features

OLAP application, she said.

ACT.

Beta tester James Rischar, a

By Juan Carlos Perez A new database tool from Business Objects, Inc. combines

on-line analytical processing (OLAP) with query and report-

With Business-Objects 3.1. own had to switch to so Of AP amica-

tion to analyze data Only then could they rotate and slice data to extract more

information. What sets Business-

Objects 4.0 apart. is its combination of query and analysis with the product's metadata (estate which was designed to shield end users from the complexity

es, said Richard Finkelstein, president of Performance Comnoting, Inc., a consultancy in Chicago. This combination im-

through, Finkelstein said. "Integrating OLAP with traditional query and reporting is important because users need both tools to get a complete

Co.'s manufacturing division in Indianapolis, said the software offers added Bexibility. And the interface - with wirproves the product, but it ion't an earth-shattering break-

cessing with query, reporting tools

ards and drag-and-drop capabil ities - makes it easier to conore the tool, Rischar said End users will find the new version easier to use and mor powerful, thanks to the OLAP

rainess picture," said Teresa feature, he added. He said he plans to expand his user base of Wingfield, a senior industry an-alyst at Giga Information Group, Inc. in Cambridge, Mass. Users don't want to 10 chemical engineers and microbiologists to about 20 with Robert Moran, director of deswitch between a query and an

cision support research at Abe deen Group, Inc. in Boston, said adding multidimen-sional analysis to

provement, a fine evolutionary step. that makes this prod

Wingfield said she would like the prod uct to let a user transfer processing from a client machine to a server in real time BusinessObjects 4.0 lets mers sched nle the automa generation of reports

in advance, accord ing to the Cupertino, Calif. Pricing per client is \$595 for the query and reporting module, \$695 for the OLAP module and \$150 for the module that allows schedule processing. The mer module for configur

ing the tool and the optional so features each cost \$1,985.

llicon Graphics' Web Force Nation Internet Server 1.0

Server 9000 Microsoft's Active X IOF flova Objects Eveny Inva WorkShop 1.0

olstice Mail Server/Client

iolaris Internet Server

ternet. It costs \$1,295 and runs on that can be used to create enter prisewide client/server appli-Solaris. It includes Hypertext cations based on Java. Internet Transport Protocol Web server Workshop 1.0 packages Java software and full Domain Name WorkShop along with the JOE Sextem support. Java Objects Everywhere (JOE) and NEO products.

 Solution Mail Server and Client is Java-based software that links provides direct Internet mail ac-Java applications with enterprise perworks based on the Common cess without the need for an inter-Object Request Broker Architec-ture (CORBA) middleware stan-dard. Available immediately as a net gateway. It supports the Internet Messaging Access Protocol, which ensures that mail can be free download, IOE initially supwat between disparate mail sysnorts Network Enterprise Objects tems without having to be con-(NEO), Sun's version of CORBA verted. The client portion gives

remote users the ability to view a Java WorkShop 1.0 is a set of message headers and decide which messages to download ross-platform Java development As reported already, Sun is intools, due in May, that lets users troducing Netra Internet Serve create lava applications or integrate Java applets with Web sites. The product costs \$295 and in-3.0, which is based on its 64-bit UltraSPARC microprocessor. The hardware is aimed at corporate chides a Web browser, source edi-

tor, compiler, debugger and project manager. It supports Solaris Finally, the company is creating and Microsoff's Windows 95 and Sun Internet Practice, a consult ing group that will offer development, design and management

"SAS software is a driving force in understanding business data."

When you're the largest independent retailer of gaodine in the U.S., with over 2500 stores and annual sales topping \$3.5 billion, one small change in fuel prices can have a big impact of the bottom line. That's why Circle K. Corporation's Petroleum Products and Services Division turns to the SAS System.

"Its analytical capabilities, case of use, and ability to handle large amounts of data put it above and beyond other software," says Mary Niles, Petroleum Systems Analyst for the division.

Fitting Circle K's Information . Needs to the Letter

Gircle K: business analysis say SAS solgues has meant tremendous time askings in day-to-day business tasks. According to Diamer Hurley, tasks. According to Diamer Hurley, Director of Petroleum Pricing and Ordering for the division, "SAS software lets to forge forward with our data, enabling us to create pricing, models, volume predictors, and budges in record time." This, in turn, lets us make decisions much more quickly."

Data regarding gasoline pricing is gathered into GMARD—short for Gasoline Marketing Analysis Relational Database—a system built

Relational Database—a system built with SAS software. From there, the data is transformed into meaningful business; information for executives throughout the Petroleum Products and Services Division. Niles saws. "The software lets

Dianne Hurley and Mary Niles of the Circle K Corporation.

us easily add other applications and functionality. Two in development is a SAS-based EIS for non-technical accounties. "It's a big goal of ours to provide executives. "It's a big goal of ours to provide executive information systems that allow people at the top to quickly and easily view data and make good business decisions. To them, a picture is worth a thousand words," add blurley.

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A few thoughts about motivation and UNIFACE application building strongware from Jim Rutherlord President General Manager, Hartford Whalers



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that claim to prove a state and my its the moment dog a recognized building

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Shorter the court

Products span ATM, legacy net gap

LAN switching power Madge Networks, Inc. and ATM market leader Fore Systems. Inc. last week announced switches that bridge the gap between today's networks and emerging Asynchronous Transfer ATM links

Madge rolled out two switches: One of fers Token Ring to ATM access and a second offers Ethernet-to-ATM access. Foredetailed ATM wide-area network access products that let users move to wide-area

nology that processes voice, data and video traffic together and does it factor and more efficiently than today's widely used switches. The much-ballyhoued technology has struggled to catch fire for several years. Making the move to ATM has been like jumping the Snake River Canyon because there's been virtually no [switching] prodacts that make the process a gradual migration," said Daniel Briere, president of Tele

Choice, Inc., a Verona, N.I., consultancy, "We think Madge's product plan makes the move toward ATM much more smooth," said Sam Hall, technical planning analyst at Utilicorp United, Inc. in Kansas City, Ma. The company is moving to Ether net switching with an eye toward ATM. ATM acceleration

CONTINUOUS IMPROVEMENT. A range of mid-range departmental laser printers. With a Printronia Continuous Form Laser Printer, there's no end to hose far you ago go For example, our Henry Duty Cycle" LSG31 and L1024 presters can deliver 50,000 to 250,000 pages per month. Month after month, And with their reliable, jam-free tractor feed mechanisms, long. unattended production runs will be routine. The do-more, cost-less printers. You'll have unequalled forms flexibility too-from 4 to 16 inches under and up to

33 inches long. There's even a cut short option with our LSGS1 That means you can produce bar code labels, billing customer statements, hang tags, reports and anything

rise your department needs There all purpose, industrial strength printers are more affordable, too, because you can match the printer to your needs and

your budget. The DuraFusion" differ All laser proving technology

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lower Dell'Oro Group, Moslu Park, Cati

Madge's new Collage 530 Ethernet-ATM Access Switch is a stand-alone unit with 16 switched Ethernet ports and a 155M bit/sec. ATM port. The unit costs roughly

\$555 per switched Ethernet port While that is a few bundred dollars per port higher than some low-priced Ethernet switches, the lower-priced switches don't

offer ATM access The Collage 540 Token Ring ATM Ac cens Switch comes with 10 switched 4M and 16M bit/sec. Token Ring ports and a 155M bit/sec. ATM port. It will cost \$1,500 per port. Some stand-alone Token Ring switches cost less but don't offer ATM access. Newbridge Networks, Inc. will resell

this box. Both products will ship in April. Mudge also announced the LANswitch LSA Access Switch. Priced at \$11,995, the switch module gives Lannet LAN switches access to ATM actworks. Madge bought switching hub player Lannet, Inc. last year

and will ship LANswitch in June "We are going with the Lannet box because it offers better port density." Hall Fore also announced the CellPath line

which makes ATM more cost-justifiable by aggregating voice, video and data traffic at rious-size sites onto one or more wide-area ATM links without costly ATM switc There are many devices on the market that perform the same functions for wide-area frame-relay links, which run up to 1.544M bit/sec. ATM access gear handle higher speeds and offers more advances

icing for the low-end CellPath 90 st at \$5,495. Pricing for the midrange Cell Path 200 and the high-end 500 starts at \$20,000. CellPath 90 and 300 are expected to ship this summer.



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I did.

You see, I was presented a similar opportunity once, over 25 years ago. I was at a party, and I ran into a very animated young man from the Pacific Northwest.

He asked me if I'd like to invest in something new. He explained how he thought that one day, people everywhere would wear athletic shoes all the time. For all kinds of things. And he showed me some drawings of shoes, with the oddest looking loop of ever seen.

"Sounds very interesting," I said, trying not to sound too patronizing. "But new things tend to make me nervous," And with that, I excused myself.

Now unless you've been living on another planet the past twenty years, I don't have to tell you what happened to that man and his idea.

So when my son, the computer whiz, told me NEC's 250 MHz V_R4400° runs Windows NT up to three times faster than the 100 MHz Pentium processor. I listened.

Then I read that Microsoft actually used the MIPS processor to develop Windows NT. And that lots of Fortune 500 companies are already successfully using it.

And now, looking back, I don't think I would've dismissed that young man so quickly. I'd have asked a few more questions. The same kind of questions you should be asking NEC about that amazingly quick MIPS RISC chip. Jux. call 1-800-166-9782 and ask for info Pack #185. Because opportunities like this come around once, maybe twice in a lifetime.



NEC

Feel 'help'less? You're not alone.

By Julia King

Companies spend millions of dollars on intion systems, then dump problems on underfunded and already overburdened That was one of the more con

ripes at a recent Help Desk Institute and pport Services Conference in Reno, Nev. Frantier Corp., a telecommunications any in Rochester, N.Y., is "putting in \$6 million to \$10 million in new [IS] assets every year." Yet after six months, oeither agers nor help desk staffers know pre-

But that hasn't stopped users from call-

ing Fovergue's support organization with hardware and software problems. Frontier's two help desks receive more than 13,000 calls a month from 7,500 users.

Meanwhile, some other Bintensive companies are just now getting around to establishing a belp desk

Until about six weeks ago, workers at Community Newspaper, Inc.'s 140 daily and weekly newspapers in Massachusetts had no one to call with systems proble Now that they do, the new, two-person help sk is getting about 600 calls a week.

And we haven't even officially runced it yet," said Carole Sullivan, mas er of training and support at the Needm, Mass.-based newspaper chain. A lack of adequate funding is the maj

reason for the support gap. Help-desk budets simply aren't keeping pace with innagers said.

At the same time, the trend is toward help deaks taking on even greater and

Spring reading list

allowing books sold briskly at The Heart Aroused: Poetry and the nation of the Soul in Corpora

rice by David Whyte TechnoCrazed: The Businessp

It Controls You by Michael Finley Getting Things Done When You Are Not In Charge by Geoffrey Beltman

A Complaint is a Gift: Using Custo

Feedback as a Strategic Tool by Janelle Barlow and Claus Moller

The help desk is typically the trashi there, but no resources get dumped there to deal with them," one frustrated mana

Research indicates that a company's re-turn on investment in help desk technology can be substantial and accrue over a relatimely short period of time. The return on vestment in systems manag can cut user downtime by as much as 759 in one to six months, according to International Data Corp. in Framingham, Mass.

Outsourcing is one way companies are ming to deal with the prob Taco Bell Corp. in Irvine, Calif., partially outsourced its help deak for store opera-tions to Coopers & Lybrand in 1993. In the last two years, call volume went up by 82%. but wait times decreased from an average of 6% minutes to 64 seconds.





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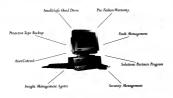
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and PC downtime. And Auset Management, whose features help you keep track of hardware and software across
the network from the comfort of your deak. Because all the information you need can be delivered remotely to your
PC. Compaq Intelligent Manageability also includes a wide range of security features designed to keep your network
secure. Which all adds up to providing the best and most comprehensive solution for managing PCs and predicting
trouble on your network. Because when there's trouble, don't you want to know about it-before it happens?

Checking the IS/corporate alignment

Survey cites challenges IS execs face

By Thomas Hoffman Which of the top information systems issues keep you swake at

Aliening technology with cornorate goals? How about instituting cross-functional systems? Those were among the key chailenges cited by the 346 North merican IS executives who participated in Computer Science Corp.'s annual "Critical Issues of I/S Management' survey. The resuits of the poll were released last week by Computer Science in El Segundo, Calif

outraditional problems, Jules D. Cohn's catchphrase du jour is "Chapter 11." As the vice president of IS at Barney's New York, Cohn has had

to put several high-flying projects on hold since the upscale New York clothier entered bankruptcy proceedings in January.

For example, Barney's was preparing to roll out a frame-relay network this month that would have given managers at its Manhasnet, N.Y., outlet almost instant access to customer and merchandise data from its mainframe in Lyndhurst, N.J. The frame-relay net Seculd really give us a

Meanwhile, other IS executive wrestle with technology and business alignment. That's a top priority at Asso Products, Inc. in Rye. N V as the cosmetics maker co

tinues to expend globally. Most countries besides the U.S. are behind the technology curve. but "there's a great opportunity for us to do architectural leaptrogging," said Spencer McDenur my, vice president of inform technology services at Avon. The cosmetics maker can, for exam ple, jump from copper wire-based communications to cellular or satellite connections, he said. Mapping IS with corporate re-

ee for Don LaFeria, vice presint of MIS at Leggen & Platt, tems from 10 Leggett & Platt ac-quisitions and move forward with Inc. in Carthage, Mo., a farniture and bedding components maker. LaFeria and his staff in the past ether technology projects, all with

New York has postprojects is order to deal with the comp ny's Chap ter II wor

By Craig Stedman That cutting-edge Internet appli-

ance coming soon to your deale may look suspiciously like a boring old X terminal. To avoid being crushed by the ampede toward low-cost network access devices, some X ter-

minal wendors are rushing to emrace the concept themselves. Recast X terminals, which are expected to cost about \$1,000, will start to appear shortly. They will have color monitors and will be able to run Java applets and World Wide Web browsers.

Announcements HDS Network Systems, Inc. in King of Prussia, Pa., recently released a prototype implementa-tion of Sun Microsystems, Inc.'s Java engine for its line of X termi-nals. That is a prelude to a naced second-quarter release of a full-fledged internet device with Java and Spyglass, Inc.'s Web

SunRiver Corp. in Austin, Texas, also will ship on a limited basis nal vendors said adding that fuscs lava-based adaptation of its lowtionality could drive the price be youd \$1,000.

end X terminal in the second Network Computing Devices, Inc. in Mountain View, Calif., expects to add Java support during the second half of this year, and

Telepronis, Inc. said it is doing feasibility work with Java and brown one in its labor Traditionally, X terminals were display stations that relied on host

Unix servers to handle process-But they sport RISC micropro pensors that should be able to run laws or browser applications They also offer wider application support than Internet appliances. said several users and analysts. Pricing for the internet appliances is supposed to start at about \$500 without a monitor, they said. An X terminal can access ago cations that run on Unix and Microsoft Corp.'s Windows NT serv

ers as well as mainframes and

uirements continues to be a chal-

Renovated X terminals may cost more than network appli rivals, "but their capabilities are in some respects higher," said Eileen O'Brien, an analyst at International Data Corp. in Framinghom Mass

Tom Schlagel, a computer assbut who provides technical support for X terminals at Brookhaven National Laboratory in Upton N.Y. said running Java 400lets on the machines could reduce server and petwork strain and still allow central administration and control. "It would essentially free you from the host (but) you'd be

pulling all your applications over the network," Schlagel said Because the applets would reside at servers and be downloaded only for execution X terminal shouldn't lose the ease of admini tration that sets them apart from PCs and workstations, be added.

X terminal embarks on new frontier DEC points finger at sagging PC sales

Comeback efforts hit a speed bump

By Jaikumar Vijayan Digital Equipment Corp. is the

latest vendor to blame flaggin corporate sales on weaker-th anticipated PC revenue. Earlier this month, deale market leader Compaq Com

Corp. warned investors of a simi-lar slowdown in sales. And last week, chip maker Cirrus Logi Inc. announced layoffs of more than 400 employees due to de-creased demand for its chips (see

story, page 32). fram of a deepening slowdown in the corporate marketplace that could spread to other PC vendors

but also create big-time price cuts

Prices slashed For instance, Compaq, Digita Equipment Corp. and IBM have

already dropped PC prices by up to 27% this month. And those wendors say they are willing to make more cuts to push sales. But the latest moves are of little

ence to companies inured to the incessant price cuts [CW, March 111 "The way things are going for us right now, we can't wait for po-

tential price cuts. When you need s system, you buy it," said Gary Davis, president of Ania House, Inc. in Evansville, Ind. Do-vis is a heavy Digital user who is in the market for Digital PCs.

Digital's announcement that PC revenue will be lower than anticipated comes less than a month af-

ter the company's decision to pull out of the high-volume consumer

PC market. With PCs accounting for 17% of the company's total revenue, the slowdown is seen as a setback for

Digital's overall turnsround ef-But Bruce Claffin, who recent left IBM to head Digital's PC business, denied that the company is ping into the red.

"It is disappointing, but no one ould interpret this as Digital is slowing or that we are losing mon ey "he said.

Waiting for upswing Terry Shannon, editor of "Shan pon Knows DEC," s newsletter in bland, Mass., said the PC prob lems aren't enough to derail the pany's comeback

Shannon noted that all other norts of the business "seem to be In response to the sales slow down. Digital has cut shipments to the reseller channel and initiat ed several cost-cutting measures

that won't include lavoifs, at least for now, Claffin said. Digital will introduce a richer mix of Windown VT products into its PC lineup later this year.

Desnite the current slowdo in sales, some observers say they think corporate demand will pick up in the second half of the year as corporations finally decide between migrating to Microsoft Corp.'s Windows NT or Windows

III Can access Unix. Windows and

I now most and ease of use Centralized control and Centralized control and

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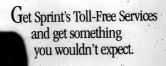
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Give people the tools to set their all information is quick and easy, users can't advantage for your company. New Misrows Microsoft Office family of applications. On the mean users appelled them the getting of money, People have the capability to take Excel Protrable* Misrow to see the res. Access in a clear and dynamic way. And users can combine data like names as the data to many the data to many the doctor man to make an interest and the data to many the doctor man to make an interest and the data to many the doctor man to make an information of the data to many the doctor man to make an information of the data to many the doctor man to make a many the data to many the doctor man to make a many the data to many the doctor man to make a many the data to many the doctor man to make a many the data to many the doctor man to make a many the data to many the doctor man to make a many the data to many the doctor man to make a many the data to many

Now that finding the turning it into an assemisesty with the answer Wizard, saves time and using Microsoft was identified by Microsoft was in the mic

sets everything up to go.

hall adventage of destabase technology, desktop database designed to work with the and the powerful capabilities of Windows NT* action of Database Replication, poople can take windows 96 Briefcase and merge offine changes crosoft Office and new Microsoft Access you are people need to their fingertipis. Help them find their software without it getting in the way.

Computer Industry

Clinton ups R&D budget

But knife-wielding Republicans may seek cutbacks

By Gary II Autho-

tight fisted and sometimes tech respholac Congress, President Clinton last week misselfed a had get designed to increase federal spending on research and developport for the booth consecution

Overall spending on K&D in fivcal 1997 would not just 25 under the president's plan, but some programs were carmarked for a hig boost in bucks. For example, Cliston would gree S45 million or 135 more to the U.S. Department of Commerce's controversal Advanced Technology Program, which Republicans have threat ened to kill entirely

The Advanced Technology Program grees matching grants to companies and universities to pursie nsky basic research. It has been branded by some as wasteful corporate welfare

"A budget must honor our obligation to push back scarning from tiers and crash through technological barriers," said Vacference. "The president's lauter's does it continues our usual ments in the Advanced Technol ogy Program, manufacturing extension and the National Inter-

motion birastructure In that were, the Clusters heeleget varnaries \$12 milion for the troubled \$15 billion project to moderne weather hereating systems, a whopping \$126 million more than is being spent this fiscal war. A rement lost month by the Commerce Descriptions of spector general found that a key comparent of the steethed was

Funding a flasco The budget would also bused funding for the Internal Revenue tax systems madernazation nogram to \$850 million, 885 million more than this war's bidget. I wa weeks age, in a scatterer indutment of the "SI billion faces" Rep Jim LightSoot (R-lowa), char man of an IRS oversight commit

S175 million, or 575, over hadget

and four years behind schedul

tre, sad he would cancel the proj ext next year unless the IRS conconverce here within two months that it's on the right track. Republicans weren't impressed with Clinton's proposed spending ships to develop technology that on technology, expressily for the can be used in military and com-

Horse Sexton Committee Char man Robert > Baller (B-Pap saled the hodget to blow to have: research and development and a

asked for tunding of \$250 million We million more than will be

beauto indestrial policy masquer-

AGENCY	1996	1997	
Defense	\$35.48	\$35.5	
Health and Human Services	\$12.18	\$12.6	
MASA	\$9.38	\$9.48	
Energy	\$6.78	\$6.3E	
National Science Foundation	\$2.48	\$2.58	
Commerce	\$1.1B	\$1,38	
Environmental Protection	\$508M	\$585	
Other	\$3.98	\$4.58	
Total	\$71.aB	\$72.7	

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I we works upo. IRM heat its

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Pro server The server will shin

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months, belind its competitions.

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Another stem suce to tenud the Republican budget kanie is a new program in the U.S. Desartment of Drivery that would retablish povernment/industry partner

so-called dual-use technology A recent analysis of Republican budget proposals by the American Association for the Advancement of Science showed that Resublicans would cut funding for science and technology by 31% by

puter Corp in the latest round of

Palmisano replaces Richard

Thoman, who is now IBM's chief

financial officer. Thoman igined

IBM in 1994; he was charged with

rewrang the PC group's for-

l'issil last year, IBM had fal-

terred hadly in the PC business. It

then overcompensated the next

price coffing on deskton PCs.

PC slowdown prompts cuts at chip maker

By Melissa Batte

Chip maker Cirrus Logic, Inc. last work announced plans to lay off about 400, or 13% of its workers. and refocus its product line on video graphics cards, moderns and digital curdless chip sets. The company said it ran into trouble because it overestimated the demand for PC class and hired too many people. Cirrus added that it expects to post a loss in its fourth fiscal quarter, which

onth Murch 31 But analysts and the problem is specific to the Fremont, Calif. based Carron and not a warning of had times ahead for the industry as a whole. I think more than any

weakness in the PC market, Cir rus has more graphics market competition," said Sherry Garber, vior president of Semiro No. words Corn in Phoenix "Ldon's think their trouble should be tak en as a sign that everyone else in the industry will have the same Tim Shane, an analyst at Aberdeen Group Inc in Boston

agreed 'Cirrus has made it through previous industry slumps without these problems. so this is indicative of a larger problem in the company," he said The decision to focus on newer technologies is a smart move for Cirrus, Sloane added. "There is a lot happening in the graphics in dustry, and Cirrus preds to move upscale faster into 3-D and video

to add sales," he said. He said Cirrus' problems man also be tied to a slump in the up grade market caused by more people buying new systems. "Cirrus had a good business in the up grades," Sloone said.

Shane added that as new CPUs incurrente mure and more video overestimated demand in 1993, logic, the middle market for graphics chips is shrinking. "All of those companies that are looking at making a market out of the graphics add-on boards are mine to have to focus on the high end because the middle market will

get eaten by the CPU manufacture But Garber said the comp should pull through this dry spell "I think Cirros has good products, they just overbuilt," she said.

are "Closen cold

Palmisano brings track record to IBM PC Co.

By Bub Francis

since last September, IBM appainted company veteran Samuel J. Palmisano as rement manager of IBM PC Co. last morely Palmisanu. 41, doesn't have PC querience. He halls from IBM's Integrated Systems Solutions Corp. (INSC), the company's consulting and out-conving group But he does have a property track receird at IBM, according to consultant Sun Albert, president of Sam Alb. " Associates in Scarsdale, .N.Y. " 's a trusted performer, and a Not he helped

turn IBM from a company that

just sold machines into a service

company. That's quite an accom-

Analysts said Palmisano inher-

ulishment," Albert said

its a PC group that is marked) more stable after several ways of Moving to fill a vacancy open termed They were to have found their footing in desktopand servers," said Juliu Dunkle, president of Workgroup Strategic Services, Inc., a consultancy in

Portsmooth N.H. Recently, IRM has been mee aggressive - in terms of both products and pricing - with its

desknound PC were thes

id you rate IBM's standi 15 audies J'erry good

year. This led to huge losses. The group lost market share, and precious corporate accounts, to Compag, which supplanted IBM as the world's large rst PC manufacturer in 1994. But the IBM PC Co. return to profusbility last year, and IRM officials said strong PC and serv-

cr sales contributed to good fourth-quarter results.

COMPUTERWORLD MARCH 25, 1996 Dette://www.com



Clinton ups R&D budget

But knife-wielding Republicans may seek cutbacks

By Gary H. Anthes

WARRINGTON rring upstream against s tight-fisted and sometimes techno-phobic Congress, President Clinton last week unveiled a budget designed to increase federal spending on research and devel-

opment for the fourth con Overall spending on R&D in fiscal 1997 would rise just 25 under the president's plan, but some programs were earmarked for a big boost in bucks. For example, Clinton would give \$45 million, or 15% more, to the U.S. Department serce's controv aced Technology Program.

which Republicans have threatened to kill entirely. The Advanced Technology Program gives matching grants to companies and universities to pursue risky basic research. It has been branded by some as waste-

"A budget must honor our obligation to push back scientific frontiers and crash through techno-logical barriers," said Vice

ference. "The president's budget does. It continues our investments in the Advanced Technology Program, manufacturing extension and the National Infor-

In that wein, the Clinton budget earmarks \$742 million for the troubled \$4.5 billion project to modernize weather forecasting systems, a whopping \$138 million more than is being spent this fiscal year. A report last month by the Commerce Department's inector general found that a key mponent of the overhaul was \$175 million, or 50%, over budget

and four years behind schedule. Funding a 'flasco' The budget would also boost funding for the Internal Revenue Service's mammoth but troubled tax systems modernization program to \$850 million, \$85 million more than this year's budget. Two week ago, in a scathing indictent of the "S4 billion fason." Rep. Jim Lightfoot (R-lows), chair

man of an IRS oversight commit tee, said he would cancel the project pext wear unless the IRS can convince him within two months that it's on the right track. Republicans weren't impressed with Clinton's proposed spending on technology, especially for the

House Science Committee Chairmap Robert S. Walker (R.Pa.) called the budget "s blow to basic search and development and a

asked for funding of \$250 million

this year bood to industrial policy managers on such

Accest		
Delense	\$35.48	\$35.58
Heelth and Human Services	\$12.1B	\$12.68
MASA	\$9.3B	\$9.48
Energy	\$6.78	\$6.38
National Science Foundation	\$2.4B	\$2.5B
Commerce	\$1.18	\$1.38
Environmental Protection	\$508M	\$585M
Other	\$3.98	\$4.5B
TOTAL	\$71.48	572.78

ding as science." Another item sure to tempt the Republican budget knife is a new program in the U.S. Department of Defense that would establish government/industry portnerships to develop technology that can be used in military and com-

so-called dual-use technology A recent analysis of Republican budget proposals by the American Association for the Advancement of Science showed that Re-publicans would cut funding for science and technology by 30% by

PC slowdown prompts cuts at chip maker By Melissa Bane

Chip maker Cirrus Logic, Inc. last week announced plans to lay off sbout 400, or 13%, of its workers and refocus its product line on video graphics cards, moderns and digital cordless chin sets

The company said it ran into trouble because it overestim the demand for PC chips and hired too many people. Cirrus added that it expects to post a loss is its fourth fiscal quarter, which ends March 31.

But analysts said the problem is specific to the Fremont, Calif. based Cirrus and not a warning of bad times ahead for the industry as a whole. "I think more than are weakness in the PC market, Cirrus has more graphics market competitioo, said Sherry Garber, vice president of Semico Research Corp. in Phoepix. "I don't think their trooble should be tak en as a sign that everyone else in the industry will have the same

Tim Sioane, an analyst at Aber-deen Group, Inc. in Boston, agreed. "Cirrus has made it slumps without these problems. so this is indicative of a larger problem in the company," he said. The decision to focus on newer technologies is a smart move for Cirrus, Sloase added. "There is a lot happening in the graphics industry, and Cirrus oceds to mo upscale faster into 3-D and video

to add sales," he said He said Cirrus' prob also he tied to a slump in the up-grade market caused by more people buying new systems. "Cir rue had a good business in the up grades," Sloane said.

Sloane added that an new CPUs incorporate more and more video logic, the middle market for graphics chips is shrinking. "All of those companies that are looking at making a market out of the graphics add-on boards are go to have to focus on the high end because the middle market will get cates by the CPU menufi

But Garber said the comp should pull through this dry spell. "I think Cirrus has good prod-ucts; they just overbuilt," she said.

ers," Sloane said.

Palmisano brings track record to IBM PC Co. By Bob Francis

Moving to fill a vacancy open since last September, IBM appointed company veteran Samuel to as general manager of IBM PC Co. last week. Palmisano, 44, doesn't have PC experience. He halls from IBM's

tegrated Systems Solutions Corp. (ISSC), the company's consulting and outsourcing group. But he does have a proven track record at IBM, according to consultant Sam Albert, president of Sum Albert Associates in Scars dale, N.Y. "He's a trusted per-

ner, and at ISSC he belped turn IBM from a company that just sold machines into a service company. That's quite an accomnent, "Albert said. Analysts said Palmisano inh

its a PC group that is markedly more stable after several years of turmoil. They seem to have found their footing in desistors. and servers," said John Dunkle, president of Workgroup Strategic ervices, Inc., a consultancy in Portsmouth, N.H.

Recently, IBM has been more aggressive - in terms of both products and pricing - with its esktop and PC server lines.

too PC server competitions to the punch by announcing a Pentium Pro server. The server will ship about the same time as simil systems from other manufacture ers, but IBM previously would have been several weeks, if not

months, behind its competitors, Donkle said But, IBM was left to follow th lead of Compaq Com-

Two weeks ago, IBM best its puter Corp. in the latest round of price cutting on desktop PCs. Thoman, who is now TBM's chief

financial officer. Thoman joined IBM in 1994; he was charged with ng the PC group's for-Uotil last year, IBM had fall tered badly in the PC business. It restimated demand in 1993.

then overcompensated the next year. This led to huge losses. The group lost market share, and precious corporate accounts, to Compag, which supplanted IBM as the world's largturer in 1994. But the IBM PC Co. returned to profitability last year, and IBM officials said strong PC and serv-er sales contributed to good fourth-quarter results.

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Chicken Little redux

The city of Phoenix first realized it had a problem on Jan. 2, 1995. A simple application that calculates five year payments crashed inexplicably. The problem? When the program tied to subtract 95 from 00 in the two-digit date record used in the data files; it simply bit the dust.

data hies, it simply bit the dust. Jack Thomas, the dip's deput information systems director, is philosophical. The a good thing it crashed, be says. Had it not, the dip would not have discovered that the application was fareed. Then we could have begun calculating inscourate payment schedules with potentially disastrous results.

potentially disastrous results.

It will cost Phoemix an estimated \$3 million to fix the year 2000 problem is not stated to the problem of the problem in the problem in the problem is the problem in the problem is the problem.

support several of the city's major departments. An analysis by searby Vissoft, which the city hired to consult on the job, found that more than 90% of the 15 department's programs use date routines that were potentially vulnerable. Will the city swallow the cost? Thomas sights. "We have no choice," he saws.

is by ky tound detate by allow te

Do you?

The year 2000 program problem could turn out to be the biggest annevent since the Michelangelo virus, but I vioubith bet on that. Gartner Group has said from the Collem will cost U.S. business more than \$200 billion over the next four years. Others say don't worry: Routine upgrades and maintenance will fix the bugs in pleaty of

Users who have been through the mill say it's not as simple as expanding all your date fields to four digits. First you have to find them, scattered across perhaps thousands of programs.

First you have to find them, scattered across perhaps thousands of programs. Even if you fix the programs, you still have to filter all your data records, suspbe a few million of them. And what about records stared off-side?

On page 4 of last week's issue, we reported on three cases in which the extra day in Pérharury this year threw programs for a loop, I shadder to think of when that day becomes 100 years. The city of Phoenits his ling the builtet and foliage the problem before it becomes aproblem. On page 60, year can read about 70 by The Equilable is dusing the same thing; I do lank how The Equilable is dusing the same thing; I do lank how The and the contract of the period of



Paul Gillin, Editor pla Internet: paul gillin@cu.com st. http://www.ultranet.com/-pgillin



IS could use chaos

I was pleased to note your short article on the use of research on chaos and complexity as an aid to solving business problems ("Fight chaos with chaos," CW, March 4]. Corporate IS would be well-

Corporate IS would be westadvised to become acquainted with this subject to gain some understanding of the computing environments we support.

For instance, our "irgacy" applications were developed years ago and perhaps were at the limits of human capacity for designing complexity. Since then, changes to programs, data, application interdependency and supporting software have creaed systems of such complexity that they cannot be migrated or re-

placed.
Within the studies of complexity, complex adaptive systems, evolutionary mechanics and the like, we might find directions to take relative to the legacy software.

Oakland, Colif mickael_macdonald@ ccgate.apl.com

Narrow the study

A college degree says to the world
that you have the ability to learn, yet
according to "IS schools need inprovement" [CW, Feb. 19], many
employers would like to have a "Plag
and Buy" college graduate.

Much of the general education in the first years of college can be given in high school. Colleges should be a place for four or five years of intense study in your particular area. A college structured this way

could be a partner to local businesses, offering students for four-year

internships.

Upon graduation, the business would probably want to hire the individual. But if it does not, at least the student has four years of marketable experience.

Ryder Gibson Orlando, Fla. ryderg@iag.net



No Mac appeal

David Pensak wants Apple to find out what PC users need to switch platforms [*Paple CED seeks customer talks," CW, Pcb. 19] (1 am willing to provide some of the answers. For me to switch [from the PC]. Apple would have to improve price, get real keyboards and get a real

get eme exponente um gre 1 rec.

The hard one hard Apple morées a real sperainte question. One mo a memory-protected, multi-maisde and protection of the control protected and protection of the control protection. One mo a command one window. Let me que to the grain of the machine. Cet rid of the hardon of the machine. Cet rid of the hardon of the control protection of the control protection. One mo a tould be protected and the protection of the control protection. One control protection of the control protection. One control protection of the control protection of the control protection. To give a fairly not sense of the control protection of the control protection. To give a fairly not sense the control protection of the control protection. To give a fairly not sense a fairly of the control protection of the control protection. To give a fairly not sense a fairly of the control protection of the control protection. The control protection of the control protection o

eard nothing from Apple so far that ould make me even consider a fac.

Roudy Rymbravice

Rynhessicr@nin.edu

More lettern, pagr 41

#Computerworld welcomes comments from its modern, Letters should not access goo words and should be addressed to Pass Gillie, Edinar, Computerworld, P.O. Bass girt, 500 Old Connection Plush, Formingham, Most, octop, Extrambles of Bythesis (1978) and the property of the

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James Martin

Political barriers can't stop the Internet

regulations forbid transmission of information make governouslered harmful to state security or "public to enforce.

At roughly the same time, German proapted CompuServe to bur access for its 4.3 to subscribers workdwide to 200 sex-related Usepet newsgroups because of local Germ

child persography laws.

Two very different governments — for
two very different reasons — have attempt
ed to impose national authority on the inter-

net. Slowly but surely, governments are be-coming conscious of the internet and its limit Mittee.

It's inevitable that some governments will try to restrict and regulate the internet. But in the long run, most such efforts will fail. The internet is a worldwide, borderiess network beyond the

a a woodrawac, oorderess network beyond the control day one generament. Internet regulation won't work for this hyper-decestralized network because damage to on-node doesn't interrupt communications. Mes-sages are simply routed around the damaged node (Consorthis) and regulations are breated as damage to be bypassed, internet servers will sprout in data havens such as the Cayman Islands and Liechtenstein to offer verboten content and

The Interset is also protected by its sheer size.

he Chipese government last month decided to
regulate the interact and force all on fine truffic
through an official channel for monitoring. The

ion is money. Analysts predict the handle more than \$1 trillion in elec-erce by 2005. Any government that

to such as China that want to re somic benefits of the Internet and simulta-control the data flow will face a big prob-w do you tell the difference between

This isn't to say the late

be regulated. "Netiquette," the informal, so self-regulation of the internet, is well-establish Certain behaviors aren't tolerated, and flaor has become a sophisticated art form.

Government involvement should be limited to monitoring terrorism and crime on the la-ternet. With large volumes of electronic cash trading hands each day, it will be in the interest of veraments to create international agreements with fraud and money isundering.

But only nations that promote wide use of the Internet - without excessive restricona - will benefit from its economic opp

Some countries seem to understand. I Some countries seem to understand. Mains sin's deputy prime emissister, Anwar Brahim recently said: "Censoring the Internet is not the solution. Simply closing our doors will not do hurt us, but pound so back in the race for growt and prosperite."

ertin is a writer, lecturer and consultant on infortion sechnology. He is also the founder of James artin & Co. in Pairfax, Vo. His latest book is The

John Gantz

Java: An emperor wearing no clothes?

es when it promised to s

saoase and development to orld has genuflected in its ection and promised to be re-compliant in the future.

PL/1. Pascal, Smalltalk, CorC++, now was it? But everyone seems to buy in to the Java

But everyone seems to vary at to the Jaw vision. Instead of writing applications with mil-lions of lines of code, we'll go to a library of Jewa "applies" and build applications from parts. App-lets generally run less than 200,000 lines each. And, ob, by the way, we need only one applications that the contract of the contract of the contract and the that runs at the client (the browser), and ti ver software will run on any hardware plat-

Let appets are shipped to the client only when and if they are needed. Of course, with this down-load is when-you-need-it technique, we don't adequeniere PCs on the desistop and all the opera-found overhead that goes along with them. Right, and arest two less.

Right. And next year Java will feed the h

Why am I skeptical? It isn't be cause Java in still pretty much unformed - you still have to handtermed — you still have to handcode graphics, for instance — or
slow. Others will develop pointand-click development tools and
compilers that speed up Jess. It
isn't because I think various versions of Jess will aprout in the
cr of all the variants of Unix, making portutions of the wariants of Unix, making portu-

ty endlessly clusive. It isn't because comes such as AT&T Bell Laboratories, Macro and Microsoft have or are crest

of building programs out of applets. Here's why:

a There are no common design rules for applets.
Your spell-checking applet might not work the
same as mine, which could adject the behavior of
larger programs in which it's embedded.

There's a There's

applets. How do I know the applet I'm resist from Acme Applet will perform an expected unti-all conditions? How do I know some int didn't build something ugby inside it? or There's no design science or common wind-short building spectrums from motion. How A

There's no design neiner or common wisdom about hailding programs from papiers. How do I get all my apples to work together? In previous research into reunable software, I-discovered, that developers almost always per-ferred using high clambs of resultable-node over small banks because of the cost of design, nine gration and settings. Deven those who were the philosophy of reunable not of small granules of the cost of th

There are times, in fact, I won Incre are times, in tact, I wonder it Java Sin't is plot by Sun to sell Just-optimized chips and keep SPARC alive, sided and abetted by Oracle (which would program in Sanskrit if there were even a remote chance of shewering Microsoft by doing remote cnatice or stewering Microsoft by doing so). Helping the cause are all those C++ program-mers looking for career enhancement and hack-ers looking for the legitimacy of becoming "asp-

lave will take its market place as just another language. It won't transform the industry.

MARCH 25, 1996 COMPUTERWORLD



in cyberspace,

government censors are

ust "damaged nodes" to be

bypassed.

pulled off a marketing coup that dwarfs the Windows 95







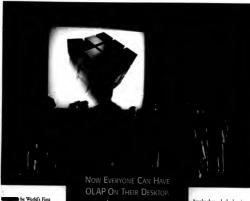
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and a management guide, "Evaluating Enterprise Decision Support Tools: A Guide to Better Business Decisions."



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CONTINUED FROM PAGE 36

Management to blame for Duke Power project failure

Your article on the failed Duke Power object project ["Utility unplugs object project," CW, Feb. 26] is another example of technology getting the

blane for what is clearly a management failure. You raise two disturbing questions about this Talarre. That, why would Duke Fower or Gracket expect to deliver an object-based system in one big Talarg. This approach is the very antithesis of the power and fiexibility of developing a new system with objects in an incremental fashion.

Second, why would anyone expert a consulting

frm with a core competency in relational database technology to successfully deliver a massive new customer information system built with a technology they know very little about?

Brad Murphy President Object[intelligence Polyick N.C.

Elimination of jobs is nothing to be proud of

The article about Northrop Grumman's Jim McCann and his IS savings | "Target reduce computing expenses," CW, Feb. 12] was aranaing, line the process of eliminating SSS million more in expenses than management jasked for, the company eliminated 140 jobs. Northrop Grumman plans to hive college granulates and more contract labor due to the lack of supply of network and systems.

Call me old-fashioned, but I don't think I would be proud of the fact that I eliminated 140 jobs. Pride is when you can say that you kept and retrained existing employees rather than laying them off and bring others. Even with inflation. \$35 million buys a lot of training.

Cypress, Tenas thail@cris.com

Bleak forecast

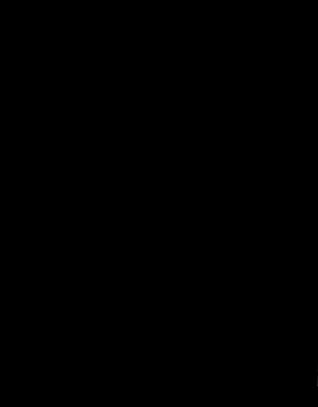
Unformaticly, I agree easily 100% with Paricia Seybold's received article in the March Carpine Seybold's received article in the March Carpine management? I have been a system of the manual paricial and the state of the manual paricial and the state of the state of

fluence is not completely correct, as it has been my experience that Microsoft tends to be more difficult to integrate than other weadons and systems. An excellent but unfortunately blenk article.

> Fort Collins, Cole. Dick Herman Grembios com

Readers debate on-line limits

INTER MET



Letters to the editor

CONTINUED FROM PAGE 26.

Management to blame for Duke Power project failure

Wor article on the inited bathe. Passer object in passer (17 thing units), object propert. CV, (4): 20 is a mother example of pre-holosopy entiting the second of the control of the contr

ogy they know very little about?

Brad Murphy
President
Objectivelingence
Raleigh, N.C.

Elimination of jobs is nothing to be proud of

The article about Northrop Grumman's Jim McCann and his Is sawngs | "Target reduce computing expenses," CW, Feb. 12] was quanting the process of eliminating SSS atfilion more in expenses that management about for, the company eliminated 140 jubs. Northrop Grumman plans to have college graduates and more contract liabor due to the lack of supply of network and systems administrators.

Call me old dischioned, but I don't think I would be proud of the fact that I eliminated 140 jobs Pride is when you can say that you keep and retrained existing employees rather than laying them off and hiring others: Even with inflation, 335 million boy's a lot of training.

> Cypress, Texas thalliferts com

Bleak forecast

Unfortunately, I agree mostly 100% with Directs Sycholds executive tractice in the Hards Company Sycholds (1994) and Company of Systems management, I have been a system/derives administrator at my company for 13 years, supporting requirement perforases and artistication and reviews and tryling to coordinate with Mh and other support groups, the coordinate with Mh and other support groups, the continue with Mh and other support groups, the continue with Mh and other support groups, and the continue with Mh and other support groups, and the continue with Mh and other support groups, and the continue with the support of the support of the continue with the support of the supp

I hope Seybold's forecast of more Microsoft influence is not completely correct, as at has been my experience that Microsoft tends to be more difficult to integrate than other vendors and systems An excellent but unfortunately bleak article. Bit & Hersson.

Fort Collins, Coln. Duck Heyman@symbios.com

Readers debate on-line limits

INTERNET CENSORSHIP

MESSAGING. GROUPWARE. THE INTERNET. THREE CHALLENGES, ONE WINNER.

The same of the sa

Lotus

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they called us for directions.

Thoroughness and attention to detail are obsessions at BMW So it's no surprise that they evaluated over 130 applications and all the major hardware providers when choosing information technology for their new manufacturing facility in South Carolina The winners? Hewlett-Packard and SAP. Our team not only delivered a total. integrated client/server solution based on open systems - we got the system up and running in just four months, which is fully consistent with another BMW obsession: kigh performance.

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According to the Minneapolis com the camera and microphone are mounted on an 18-in, flexible, adjustable cord and include industry-standard, line-level audio. Flexcam works with Apple Computer, loc.'s AV Macintosh computers, all video

intosh and Microdigitizing boards for Ma soft Corp.'s



MicroTouch's TouchPen monitor

dicroTouch Systems, Inc. has introduced the TouchPen monitor family of CRT displays.

According to the Methuen, Mass., company, the TouchPen monitors combine in tegrated touch screen and pen input with high-resolution 15- and 17-in. Diamond Scan CRT displays from Mitsubishi Elec tric Com.

The TouchPen monitors were designed to handle applications that incorporate doc-ument annotation, image manipulation. signature capture and handwriting recog

Pricing for the 15-in monitor starts at \$1,595. Pricing for the 17-in.

monitor starts

Pentium Pro servers near launch

By Bob Francis

re's good news for nounies that are enting highred : application nc New syst powered by Per es are arriving with we price stickers. The systems were designed as

ed application servers that n NT applications, an Their pricing looks aggr sed on companies that have al-

dy announced them, said John skle, president of Workgroup egic Services, Inc., s con g group in Portsmouth, N.H.
"Price is a moving target. It said get pretty brutal out there,"

Sales of symmetrical multipro-saing (SMP) bosos grew rapid-last year, and users said they ould look at coming SMPle systems. We'll be exam ng these new systems to see w they fe take our plans to de y Windows NT servers," said rt Loveland, an info

es consultant at Nort es Power Co. in Mi A newly aggressive IBM PC Co. unweiled its offering at Cellin in Hannover, Germany. The PC Co. manusced a four-way SMF tem based on Intel Corp.'s 166 MHz Pentium Pro- Prices will

start at \$18,995, and the machines will ship in May The following systems also were annou

· Advanced Logic Research, Inc. in Irvine, Calif., will ship Revolu-tion Quadé next month. Prices will start at \$14,995. pologies, Inc. in Best NEC Techs

Serva SH line in the second quar ter. Prices will be announced later.

Hewlett-Packard Co. and Compaq Computer Corp. next mor will offer Pentium Pro servers. sources said. The Compaq sys-tem will include scalability from one to four 166-MHz Pentium Pro rocessors, bot-swappable 2G-syte Fast and Wide SCSI disk

ves, built-in 10/100M byte ernet connections, and a Perigheral Component Interconnect architecture integrated with Cotp-paq's TriFlex system. HP will re-lease a similar model at about the

name time. Compaq and HP off-cials wouldn't comment on manaced products. The competition has lowered

the expected costs of Pentium Pro vers. When Intel announced e Pentium Pro and the surrounding server chip set, most miles expected systems to ini-illy be priced above \$20,000. Im-meted chip yields and lower emory and disk drive prices al-

we helped lower costs. But not every company is rushing into the Pentium Pro server bartle. Dell Computer Corp. in Austin, Texas, and AST Research, Inc. in Irvine, Calif., plan to wait until later in the year. Dell officials said the firm, which hasn't succeeded in the server market so far, is changing its distribution

Cheap, NT-based mirroring released SET III mirrors server memors

By Jalkumar Vijayan

A new Windows NT-based mirroring product increases PC server fault tolerance. Vinca Corp.'s Stand

NT software lets network adminvia an industry-standard Perinheral Como next (PCD link

If the main server falls or is shut down, the software automati-

main to the secondary server from which users can access the mirrored data in less than a min-ute. The software will ship in April and will cost \$2,999, Vincu off-

StandbyServer NT provides inservices mirror data from a primary NT serv-er to a standby system

Mirroring

or PC server owners
who are unable or "". willing to pay for the

considerably more expensive but more robust fault tolerance prosided by technologies such as Nowell, Inc.'s System Fault Tolerance CSFT) III, analysts said.

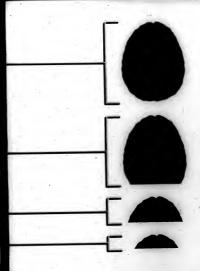
and disk storage. It can also connually monitor secondary and primary server performance. ent switchowers in case of a server

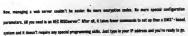
Typically, these feat SFT III about two to five times more expensive than Vinca's product, according to analysts.

Nevertheless, industry wat ers said. Vinca's wares are sought after. StandbyServer is "a go product. A lot of uners we talk

ca, page 45 Best (News.competerworld.com) MARCH 25, 1996 COMPUTERWORLD







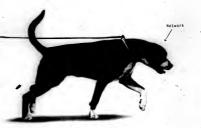


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And so do the analysis at D.H. Brown. In a recent study, they ranked Solaris' as the best enterprise network operating system? Ahead of Windows NT. And above NetWore* Then again, why wouldn't they? After all, Solans provides serious power you can add to your PC workgroups. While protecting your NetWee and Microsoft Windows. location, and lets you put all your workgroups on the Internet. Easily and securely To get the study that shows why Solaris is so highly thought of, call us at 1-900-SUNSOFT, prompt *1. For more information see us at http://www.sun.com/solure/The solution is well-within reach. The introduce is the st



Servers & PCs

Vinca

CONTINUED FROM PAGE 45

with are asking for the kind of fault tolerance that Vinca is offering," said Bob Saka keeny, an analyst at Aberdeen Group, Inc.

in Roston Vinca's software works with any stan dard Intel Corp.-based PC server. It is disferent from SFT III because the primary and secondary server don't have to be iden-

Vinca StandbyS

tical. But the Vinca setup requires the free disk space on the secondary server to be large enough to mirror the primary serv

er's disk space.
Users load the software on the main and backup servers and use industry-standard PCI cards and cabling to hook them to each other. Users need to buy their own adapter cards and the cabling that physically links the two servers.



Vinca, an Orem, Utah, supplier of stor-age networking products, ships similar ver-sions of the product for Novell's NetWare and IBM's OS/2 environments. Allied Signal Automotive and Energy Venture,

loc are among Vinca's Cu Users of Vinca's earlier NetWare and OS/2 versions of StandbyServer said the product has helped them. "We've used it for some time now, and it's been great," said Alan Walker, network coordinator at

the Institute of Real Estate Management in Chicago. The institute has had times when the primary nerver failed, and the secondary automatically took over before the fallure was detected.

The institute chose Vinca's Standby Server for NetWare instead of SFT III be cause of the lower cost and because so

of its applications weren't compatible with SPT III, Walker said. "It's not an endorsement of the

but it has been a pretty useful product for us" because it provides 24-hour data back-up facilities, said Kumar Punjabi, project manager of networks at Circus Circus Enprises, Inc. in Las Vegas, which uses an earlier Vinca backup product.





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AIG plunges in

Insurer takes three-tier step with Sybase contract

By Dan Richman

The largest insurance company in the U.S. opes a multimillion-dollar contract it signed eller this month with Sybase, Inc. will lay a client/server founda tion to help it maintain

rican International Group, Inc. (AIG) in New York has agreed to Ecense Sybase's full range of products and services. The contract is worth hetween \$2 million and \$9 mil lion, industry watchers said. Neither Sybase

per AIG would reveal the contract's size. AIG is installing a new three-tiered architecture, compliant with the Distributed Com ting Environment (DCE), domestically

in 100 locations worldwide. DCE is a set of industry specifications for terroperability. Three-tiered architecture refers to a desktop client, an application

server where the logic resides and a database from which the application draws data. "It is a big deal for our company in terms of moving to more powerful computers, making important information available to more people and doing data mining" that can show trends and indicate where additional siness might lie, said Mark Populano, an

AIG vice president.

Competition is key With some 32,000 employees in 130 countries. AIG feels enormous pressure from competitors within the industry, and its executives see the technology in this contract as

critical to remaining competitive.

"The insurance industry is basically playing catch-up technologically," Dean Witter Reynolds analyst Michael Lewis said. But

those companies that catch up fastest will Insurance companies are finding that mainframe applications can't be changed

fast enough to let them get new products out the door within the 12 to 18 months that new products usually live," said Robert Fronk.

vice president of technology at Symmetrix, Inc., a developer in Lexington, Mass., that specializes in insurance. There's a lot of essure to speed up development, access to ta — anything that makes better use of time and belos distinguish one competitor

Right now, like mixey insurance com ies, AIG does most of its computing on IBM-compatible painframes that run DB2 database software: Client/server compute

isn't popular in the insurance industry ex-cept in limited roles, such as tracking invest-AlG im't considering moving away from frames for its transaction processing But it does want to get away from users' de-

dence on information systems personnel for reports on premiums collected in the last

IBM aims Notes at legacy users

Software to be gateway to large systems

BM forked over \$3.5 bil-Bon last summer to buy Lotus Development Corp., mainly to get its hands on Notes and rule a segment of the desktop market. But plans for the group ware are actually broader in scope: IBM intends to make Notes the desistop PC user's gate way to the company's extensive

in fact, IBM hopes to dimi the importance of PC operating eveteens and lessen Microsoft Corp.'s dominance by using Notes as a key middleware com ponent, according to a report by D. H. Andrews Group in Chesb

ire, Coon. Notes now has ties to a number of IRM's traditional back-end data storage, processing and tran tion systems (see chart). And IBM has made a Notes server an important component of its Project Eagle suite, which the compo-

ny will announce this week (see related story, page 14). "Notes organizes and struc-tures and coordinates unstructured data," said Gary Alpert, a senior strategist at IBM. But up-

structured data managed by IBM's legacy systems, he added Notes-tying And Notes should pave the way

toward tying together those vari ous legacy systems, said analyst Matt Cain at Meta Group, Inc. in Stamford, Com. Making Notes the desiston interface will breathe new life into such systems and help IBM get Notes into sites with ting IBM equipment.

For example, the CICS Gate-way for Letus Notes allows a Notes server to communicate directly with CICS transaction systems, providing one-stop access. to Notes as well as legacy data. And the MQSeries Link for Lotus Notes allows Notes applications to CICS and other back end applica

"In order to provide a complete rocess, the Notes process also as to go to a CICS application. said Ron Berry, a technical risk analyst at Barnett Banks, Inc. in sorville, Fla. "Our strategy for Notes was at first to use the collaborative database groupware cept. But now users see Notes as a data-entry system into our consumer losos products, for ex

And one hospital has seen the combination of Notes with legacy systems improve its financial situon. The Ningara Falls Memori

The ties that bind

al Medical Center in New York is using Notes and MQSeries to automatically download billing in-formation to its maintrame, said Dick Witkowski, director of information systems. He said the hospital expects this year to decrease support staff costs by

IBM's first stab at incorpor ing Notes as part of a middleware suite will come this week with Project Eagle, a suite of back-end application servers that line's up competitively against Microsoft Corp.'s BackOffice. In effect. Notes provides the desktop access to these other back-end



Delphi 2.0 supports rapid development

iding high-performance, scalle applications for Microsoft's Windows 95 and Windows NT just became easier with Borland's ect-oriented Delphi 2.0. This ejor upgrade to the year-old derelopment system weds a highperformance compiler and an encyclopedic feature set to a scalable, multithreaded architec-

versions with more than 100 dragdrop-and-scale visual components and a speedy, 32-bit native-code compiler. The upgraded compiler provides more coherent error messages than its predecessor

saving tools offered in the other

and catches errors all at once instead of one at a time. Another feature con rapid applica-

Borland has fortified the three shiller to display the entire application's code or just a selected You can convert Delphi 1.0 source code into 33-bit code, as we did, using the Build command. One carest You will run into problems if the 16-bit Visual Basic

> died with Delphi 1 0 Other design aids include a

controls have no OLE control

equivalents. To assist developers

migrating from 16-bit to 32-bit, all

versions of Delphi 2.0 ship bun-

Project Manager, which lists each

form in an application. The Data

Pump Expert - available in the

To key in new code or tweak exting source code, we used the that uses an OLE Automation compliant language. Supported standards include Open Database Code Editor We liked the editor's Connectivity, OLE controls, Remote Automation and Microsoft's forthcoming Network OLE.

According to Borland, Version 2.0's executables also run significantly faster than the executa from Microsoft's Visual Basic Compiled code, which is used by Delphi, generally runs faster than



Delphi 2.0 fully wets Winpp. 95 ma on programming interface.

We tested Client/Server Suite,

the most comprehensive of Bor-

land's three versions. Used to de-

sign workgroup and departmen-

tal-class applications, Client/ Server includes Intersolv, Inc.'s

tion develop-1060000 ment is Object Pancal's reuse of code. We saved random trois, long file names and the Windows 95 appli-

chunks of object-oriented code as. Dynamic Link Libraries for reuse in other applications, Borland tuned its Object Pascal programming Im-guage to gain performance and added support for integer, strings and OLE, plus other variants

Developer and Client/Server versign - increases the capacity of or database to the limit set by the veloper. Delphi's Object Repos nory stores forms and other obiests that you can share among applications and with other devel-Data Modules, a specific pur

pose form available in all versions likewise stores data, events and procedures. By separating data tation, access and business loric from the form, Data Modules eliminate the need to place all table definitions on one form This makes for a cleaner, less clut tered development confronment Delphi's OLE Automation Serv er encapsulates data access proce-

ers can be used remotely, but the program doesn't include the control software needed to establish remote links. It requires third-party utilities to set Registry values. Wedding s 32-bit compil

with the 32-bit foundation of Windows 95 and Windows NT 32 bit endows Delphi 2.0 with lots of zip. Borland claims, and our informal tests confirm, a 300% per-formance improvement in its

spreted code, which is used by Visual Basic. Borland claims that Delphi executables run 15 to 50 times faster than executables built with Visual Basic's interpreted P-code. We weren't able to confirm or disprove this indepen-

> Millman operates Data System Services Group, a networking and probless-solving consultancy. He is but in Croton, N.Y., and can be reached a

dular tools mage devel PVCS version-control manager. SQL tools and advanced applica tion scaling utilities. To build a test application, we Borland has positioned the De-

chose components, or objects. from the dozens available on the multitabbed Component Palette We stretched the components to size and dragged them to their location. Next, we modified each component's attributes with Del-

lacks the tram-oriented and time-

Desktop, the least costly version, alds complete applications but

loper edition to meet the needs

of LAN-oriented developers

nhi's Object Inspector, the property manager box that customizes every aspect of a component's behavior and appearance

dures, making the procedures Books about objects mary into about Cobol and ob-

 The Object Tecknology Resolu-tion, by Michael Guttman and dy, can you spare a paradigm?" us, john Wiley & es, Inc., Hew York, sile pages,

This is a basic road map and a good thing to give anyone who

seeds to know why they need to now about object orientation. I'lt will change the way you do ousiness," the book's cover promises, along with other rea-sons.) Especially given what is usually considered pretty dry ubject matter by anyone out side the computer industry, this book is a fun read. It puts object orientation into lavasan's terms. ng things such as tuzicabs to explain object classes. One of my feworite subhendings: "Bud-

· Recognitering Colol with Objects; Step by Step to Sustainable Legacy Systems, by Robert Lavey. McGraw-Hill, Inc., New York, 157

> This seems like an indispe guide for any large shop that wants to update its mainframe applications without having to redo everything all at once. The basic premise is that your old Cobol applications don't have to be an albatross that prevent delivering new services to your end users. Instead, the author says, updated Cobol systems can be the basis for the move to new technology and new services. After going through some prelimi-

sects, the book delivers what it promises: a step-by-step guide on how to do this OLE Automation Progra nor. Microsoft Press, Red-

nd. Worth., woo coarse, Stanes

This book tells you everything you might want to know abo OLE Automation, which essen tially is how you use OLE objects to create applications that have objects in their user interfaces seen behind the

lets you create tooks, including ages and browsers.

run-time executables compared

tion, by Salrag Kla Razzalk Abooss, in

This one is for serious object

eeks or those who want to be me serious object gecks. The first chapter lays out, in fairly plain language, what object ori-entation is, what "inheritance"

ans and other basic cor Then things get decidedly more abstract data types, ini er interfaces, object-ori nique, and object-or guages including S Effel. There is a ch

Object Request Broker Architecture and OLE. A handy and other contest info



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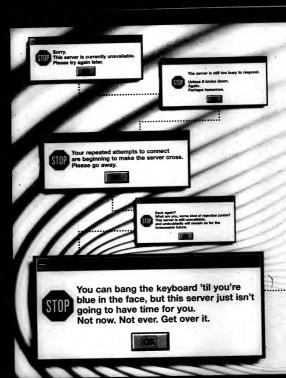
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Introduction



. Development Challenges Getting Tougher

opers is in distributed software, whether that be client/server, peer to peer or Internet applications. However daunting this challenge is, the challenges of tomorrow, which will include developing applications for distributed object environments, will be greater.

This White Paper will explore the state of the art in client/server development and distributed development. It will also advise readers how to select tools for a particular application development problem.

Many of the findings inside stem from a July 1995 survey of 835 application development managers from different industries in the U.S. These sites (by sites, we mean single contiguous locations) ranged from one to 35,000 employees, with a median of 150 employees. Enterprises, comprising multiple sites, averaged 580 employees and ranged to 300,000.

Of these 835 managers, 64% were currently developing client/server or distributed applica tions at their site. These managers current employ many distributed application strate

Today, the challenge for application devel- gies, a diversification policy that IDC believes will continue. Of sites with fewer than 100 employees (which this White Paper will refer to as small sites), only 36% have adopted new tools for client/server development. But that figure rises to 53% for the sites we will call "midsized" (those with 100 to 499 employees) and 78% (or "large" sites (those with more than 500 employees). In other words, the propensity to purchase new development tools depends on one's overall development strategy, organization size and industry.

Businesses are increasing their development of distributed applications. Most of this increase will come from internal development. To maximize the results of that internal development, managers must consider many factors. Inside we will examine these factors so you can begin your planning process for the brave new world of application development

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This White Paper was written by Tony Picardi, Group Vice President of Worldwide Software at International Data Corp., Framingham, MA. He has overall responsibility for all software, including packaged applications, application development atom and system-level software, and specializes in high-level development languages. Picardi holds as ScD in systems analysis from MIT and has 21 years of experience in systems consulting and product marketing at various software tool vendors. IDC is the IT industry's leading provider of market research and consulting services.

Selecting Tools For Distributed Computing

istributed application strategies are in a state of fax. The number of sists of participation of the property of the property

By year-end, 65% of the 835 sites that IDC surveyed (see p. 3) will be developing applications internally. More than half of the sites doing internal development will have adopted new tools to belp their programmers build cliently-erver applications.

To select tools for an application development problem, there are four steps to follow. First, determine the magnitude of your development challenges what are the scalability issues, in terms of both size and complexity? Second, apprane your development paradigm, (omining this step swates time and has damaged careers.) Thard, falter out the tools that are impropriyate in terms of organizational culture and scalability. Fourth, roll up your sleeves and try out the remaining mobile. ... feature by feature.

Development staffs grow, but the legacy remains Development staffs are growing, 42% of the managers surveyed said their staffs will expand by an average of 15% in the next 12 months. Of this 42%, sites developing applications internally account for 75%, a figure that will reach 87% by year-end.

In any organization, developer resources are precious. How much time is devoted to application development? How is that time allocated between maintaining existing applications and creating new

code? Such issues have a big impact on tool selection.
The sites surveyed averaged 38 employees per full-time IS employee. Of the IS employees, 29% did

only application development and maintenance programming, as opposed to other IS tasks such as database administration, help deck and LAN management. This programming staff was allocated \$2.7% to basicianing existing applications, 2 (8x) to re-engineering those applications, 10x deciding adding GULs and migrating code to new plasforms and 20% to developing mer applications, with little or no reuse of legoxy applications.



In other words, a relatively small percentage of total IS staff works on new development, while up to 75% of them work with legacy applications. The requirement that developers do legacy maintenance and re-engineering precludes many practical IS managers from adopting new tools.

Challenge of distributed application development Scalability of both size and complexity is a key criterion in choosing development tools for the new fundamental applications. To get an idea of the cur-

distributed applications. To get an idea of the current application scale and how it is changing, IDC asked developers about their distributed applications. How big and complex are client/server applications now? How do developers expect size and

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complexity to change by year-end?

According to respondents, the two most popular client/server applications are information access and transaction processing (OLTP). Office automation is a distant third, followed by event-driven workflow and realtime process control. (See Fig. 2.)

The intended number of users for client/server applications under development varies by site size. At small sites, applications average 232 users and will grow to 385 users by year-end, but half currently have fewer than 20 users. At large sites, applications start out serving 640 users and will grow to over 1 539 mers by year-end, but half currently bave fewer than 53 users.

Note the disparity between the average number of users but the high number of sites with just a few users. Most applications serve the workgroup, but a few move up the organizational hierarchy, i.e., are scaled up. This is why the issue of application scalability is so daunting. If your application is destined to scale up, the number of users of that application will likely increase geometrically. An application originally designed for 20 people may need to span to 10 times that number of users in a single bound.

Although only 25% of the sites have 500 employces or more (therefore having the larger applications), applications at these sites are expected to grow to four times the size of those at smaller sites.

volve information access, implying little or no transaction load. But for OLTP-type-applications, developers expect loads of 77,000 transactions per day. By 1997, that daily average will jump to 126,000. The average size of the application database is expected to be nearly one gigabyte.



By implication, size scalability is a function of number of networks, servers and server types. As the number of tisers grows, heterogeneity of the environment also increases. An application designed to work on one LAN has to cross one scalability bridge to work on multiple LANs, another for a WAN, another for multiple types of servers (i.e., different network operating systems) and a final huge bridge: Developers have similar expectations for their apusing standards-based technology and protocols plications' transaction loads. Most applications in-

Where Tools for the Internet Fit in the Development Picture

Jeee, San's interpretive 3GL with e 301's hailt-in flexibility, and JevaScript, a scaled down 4GL-like ion that cee add application, mechina and/or pletform-specific extensines to Jeve (accesses) generate interpreted code that will ran on a variety of user interfaces once the application is downloaded.

Many davalopers of cliant/server 4GLs or CASE tools would find it so C programmers on Internat-con-

or CASE tool generate Jova for leternet clients

in the next 12 months, Java code generators will be released to more closely fit this group's development peradigm. It will take Interest-contric Visual 4GL or RAD tools to popelerize leternet davelopment, es PowerBeilder hrought clieet/server to the early majority. While Jeva has OLTP applications who are using immediate appeal for the 1 million or

Scripting languages (sech as more cost-effective to have their 4GL tric 4GL and RAD tool would lere the millions of noe-3GL programmers. Internet tools for creeting simp server-centric information access

types of epplications elreedy exist. Development menagers should look for the 1996 crop of Internet tools to be able to treet the internet server es eey other eods is a heteroganeces epplication erchitectore eed gen aties secure transactions as well as downloading parts of the application to ran on the Internet client.

(such as DCE) to be truly distributed. Many software architects solve these problems with middlesware, but the development tools themselves are often, the cause of failed scalability, either due to a lack of partnered (or embedded) middlesware or subtle performance problems that only crop up when crossing the bridge from a simple world to a complex one.

The vast differences in size scale between applications affect the choice of development tools. A rough way be adequate for one business but inappropriate for another because the initial size scale is greater by multiples. Just as important, a tool chosen foot; he prototype may not be appropriate when loads increase by multiples in a short time.

Developers also face challenges in application complexity (IDC calls it complexity scabbility). Entributed applications are complicated by multiplevendor DBMSs, complex ruler-based logic and event-driven logic, all of which require sophisticated programming. Took chosen will depend on where one is on the complexity scale and whether the complexity stems from integrating data from multiple DBMSs or working with heterogeneous networks.

Development process integration is critical

Most S. managers require a side starting of tools. But how of the get there tools to work together? In Fig. 12, 75 of S. managers and total integration of the entire development process, from regularements to application management; 23.5% want to tain-ardire on a database and add only integreted tools, either from the DBMS supplier or third parties. Over half the respondents use one of these two strategies, indicating that for most developers, insecting that the property of the property of

What kinds of tools are developers using? How is the use of tools changing? Fig. 4 shows the percentage of development staff using various languages in mid-1995 and the expected distribution of languages by year-end. Four conclusions can be drawn:

1) Cobol is still the most popular development tool and will remain so in the short term (due to the need to maintain and re-engineer existing Cobol applications). Cobol's decline has been accompanied by increased use of C and C++. Most programmers use the latter in a 3GL paradigm, even though never tools offer higher productivity.

Vendon are giving developers the means to raise productivity while staying with the same paradigm. For example, Visual Object Cobol from Micro Focus and Microsoft Visual Cot+ can increase productivity for Cobol and CC++ programmens, respectively. It remains to be seen if IBM and Micro Focus can stem the slow exodules from Cobol with their new OO

Cobol and related class libraries and components.

2) The most growth is occurring in chem-centric tools such as Visual Basic and 4GL RAD tools such as FowerBuilder and SQLWindows. This is consistent with the rapid increase in client/server development and also with the need to re-engineer existing

applications via an added graphical from end.

3) Smalltalk and other object-oriented languages are used by the segment of the developer population we call visionaries. (This includes the tirp fraction of C++ users who have implemented as true object-oriented development framework and development on formal resuble class filtragies.)



4) Use of both CASE and 4GLa is increasing (reflecting the need for integrating environments) but CASE is increasing proportionately faster than the classic 4GLs. IDC's interpretation is that CASE vendors are now simplifying the development process without high retraining costs (i.e., traditional CASE.

which was shunned by most developers).

Development managers want total process integration, but no single tool can fulfill all the requirements for each step of the development process. To achieve their goal, integration-minded developers



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BIMUG SOFTWARE

BMC School of the proof of Audio School box Sengar Timer Service Service School school of Support Service Structure School School and Service Service School School and Service Service Service (Audio Service Service Service Service (Audio Service Service Service (Audio Service Service (Audio Service Service (Audio Service Service (Audio Se must combine language tools and non-language or process management tools. The most popular non-language tools used hs de-

The most popular non-sunguage and users we selopers to integrate their processes are software distribution, configuration and version management, project management and project planning (see Fig 5) Component software and purchased class libraries will support object-oriented strategies



Growth at this early stage, however, is mainly due to the purchase of components — visual objects — to support Visual Basic programmers

The change in red tools shown at Fig. 3 is modesed, but variable off it is me for tools be distributed, applications, § congept that barely existed two joinest spile but in tools bossiming. Development managers are realisting that their meetinens in regression tests is a corporate asset. How realization drives the growth in the integrated testing "platforms" that offer traditional keevindes expurie and platback or specifications-based secting as well as test unite lithertims and test process management software.

Only a fraction of developers currently use standalone repositories. The vast majority prefer their

repositories tightly integrated with their 4GL, CASE or object-oriented tool.

No one tool today can dedner a totalli integrated declerer consellective development across the scale-blatty spectrum. This paradox is that powerful tools that facilitate absertst and automoted generation for complex environments are too costly (in terms of licenses and retraining) for smight casks; easy-touse tools do not deliver the scalability needed for the high ends of the size or complexity spectrums.

Match tool paradigm with cognitation
A development tool paradigm is the basic
though process used to create applications. How do
YOU thank Do you conceptualise in granular sequential commands, or do you construct abstratbusiness entired. For some talls to use and protocopyworkthon processes, or do quarter and protocopyworkthon processes, or do do paradians. Talented desertion and armitode much of their success to natural
adults, but the truth is, it takes practice to become
production at any paradigm.

Changing paradigms brings discontinuity to the development process, and desontantiates are expense for any organization. For they necessate considerable retraining, For start part of the SCL programming, for some set SCL programming to a much easier to adopt a new SCL than to sharing as model-driven CSEs paradigm. Making incremental changes in an existing paradigm is cost-effective, leaping from one paradigm to another a not. except when the application of the start programming from one para-

There are two kinds of costs of change: those of undrividual adoption and those of organizational adoption. Not only are costs higher when more propile are involved in organization-wide paradigm shifts, so are the consequences of a missike. It took sendors of development tools a generation to learn this: If the organization is not ready to timest in a paradigm shift, it will not adopt new tool technologies. And if it does adopt them: it will fail.

IDC has developed a taxonomy to classify some 200 tool vendors in 20 tool markets, based on what tools do, how they do it, how they are used, their abstraction level and breadth of functionality. It has listle to do with application scale. For example, SGLs Business managers need software developed to support their business. Software developers need to prototype, get the design right, and generate code.



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Tools for distributed development fall into five

paradigms, early defined by a combination of functions, usage merophers, fixtume productivity levels and price hands that together determine how collective the paradigm will be for an organization. Paradigms have as much to do with individual and organizational collections as with whether the tool can do the job. Cook hoods that require more training made more conselectificate that sumples roots that result in a longer development cycle and more life inner manterizative recourse. The paradigms are:

Classic 3GLs
 Visual 3GLs

The list contains no specific object-oriented paradigm, because object-oriented development is a methodology for using the tools. Many of the tools have specific features to aid developers in defining

and reusing classes and objects In the survey, development managers were asked which tools they purchased for client/server pro-

grammers. Their responses were classified according to these five paradigms. Respondents chose tool paradigms in this order: Visual 4GL, Visual 3GL, Classic 3GL, Classic 4GL and CASE.

3GL paradigm: least cost to adopt The 3GL paradigm still dominates development,

although instead of just Cobol, several different
g 5GLs are often used. State 1990, Cobol has lost
share to C due to C's pouglarity for programming
imidrange Unix servers. Now both languages are losing share to C++ for this function, although Cobol
is retained for legacy maintenance.

is retained for nigot, maintenance.
Use of visual SGLs, led by Visual Basic and Visual
(£++): is soaring. Visual SGLs offer easy-to-learn
CGI builders and rich sets of pre-built components,
a and are easy to adopt since they are only an incremental change from traditional syntax-driven and
g command-criented SGLs. They are used for simple
chembered development and as a cont-efficitive way
d to re-engineer legocy applications to clericity-ers.

4GLs: practical solution for mid-range OLTP Traditional 4GLs were designed for larger and more complex development tasks. But suppliers enhanced these products' integration with leading

more complex development tasks. But suppliers enhanced these products' integration with leading DBMSs, creating the DBMS/4GL hybrid powerhousest that now dominate the tool marketplace. Adopting these integrated 4GLs was only an in-

cremental step for organizations, many of which already had 15 years of experience with relational DBMSs and more with host-based 4GLs. To integrate a client/server 4GL with an RDBMS was a relatively small step but a compelling proposition.

Gaigially, this integration came from vendors of BMNS-independent AGs, who touched their ability to develop applications that interfaced to multiple vendors' DMNS- BMNS vendors' occompencies were in the database engines themselves, not the characteristic of the state of the database engines themselves, not the paradigm swin robust report generators and surface repositors. But might properly a first production of the state of the s

In single DBMS environments, these DBMS-cen-





type applications. In multi-vendor DBMS environments, the cosmopolitan nature of the tools of the DBMS-independent vendors may provide an edge. Also, some DBMS-independent 4/L3- offer more environment support for prototy-ping, complex logic support, decision support or transaction monitoring. One bag concern Business logic that is hard-



coded into vendor-specific DBMS triggers and stored with the data schema is not transportable. Most 4GLs have migrated to become visual 4GLs.

meaning a developer can now create nearly an entire application by pointing and clicking on visual objects and scots. 4GL syntax is needed only for the more complex logic.

Integrated CASE: saved by complexity

CASE tools have languished for the past two
years, because CASE has been organizationally hard
to adopt. Vendors were late to generate code for the
client part of clientiserver, and were slow to move
CASE's server-based metadata repository off the

CASE's server-based metadata repository off the mainframe and work out ways of managing the models so teams could work effectively. The mainframe repository operating environment meant these tools carried a high price tag. CASE vendors have addressed these issues. They

Cox vetnoss nate autoresor use connos offer flexibility in usage metaphor: Users can do rapid prototyping, the tools generate a generous amount of default code? and users are not confined to a strixt methodology. Their tools have become inore cox-effective due to more flexible and lower entry point prixing models, less learning time required due to greater usage flexibility, and functionality increases that truly offer platform-independent models for multi-tier distributed development.

Even though CASE tools still fall short in process tasks such as managing other tools' code and software distribution, they may be about to enjoy a rebirth as a development paradigm for the most complex distributed applications, for large-scale systems

involving mainframes and as a means of generating data schemas for visual SGLs.

Object-oriented methodology: different flavors

Opercionistica en en all sings to end up using obfreemanches and all sings to end up using obposition and control of the con

ong through component-based tools.

Effective use of object techniques demands a methodological focus as rigorous as any associated with CASE. This is because the productive proof comes with reuse of clauses and associated methods. Reuse, however, regimen that claus designed be well thought out in a top-down manner; menning as or againstrain has to me the composition of t

graphical tools).

Object technologies have been widely adopted by software vendors, since it is in the survival manual of every vendor developer to be a visionary. But businesses, wary of making paradigm leaps, lag by at least three veats.

Many tools, including visual 3GLA visual 4GLA and GXS tools, clim to be degler-based. However, true unblieder inheritance, polymorphism and engulation still public degler-based tools. Also, resuability of methods for large projects becomes impractical of these are no degler thereins with the expertise to help our final appropriation such the expertise to help our final appropriation with the production. See all the substitute of the experiment of the experim

The pragmatist early majority will minimize their development risk by oping for an object-based tool as transition tool, with the promise that the vendor will migrate the tool to true object orientation. This will suffice, as much of the other software needed to manage the distributed object environment is not pin place. Object-based took are a seductive way



to begin learning the basics of the technology.

A final note: Certain types of applications cannot

be created contefficiently without the use of object tools. Examples include complex networked tata models (the bill of materials and assembly methods for an airplane), complex event-driven logic, technical applications (CADVAA's), and location-transparent processing. In the distributed world of today, these applications are becoming more in denand.

Rapid application development

Fine on the advect of graphical client interface, builders, building CLTs we extremely difficult, but visual RAD took allow both SCL and 4GL programmens to point-anal-click their way through a GLT up. This RAD exercise usually receal valuable deign information about the application workflow and/or the business rules, Visual SCLs have window and/or the business rules. Visual SCLs have window and/or the business rules of the school of the top of the business rules of the school top of the business rules of the school of the transport of the school of

But with RAD tools, scalability issues surface, Multi-inter transactions are difficult to generate without actual programming, which often involves comlet logic that accessed that across veeral platforms and could trigger concurrent processes on multiple computers. At extractives, collability, open onesign to target multiple iters of servers and to dynamcally switch processing in realtime based on application transitime criteria controlled by external application monitors. With RAD tools, this is only possible by recepting to the underlying code, which is often very non-RAD-like.

Development tool scalability

"During tool selection, IDC recommends that cusjourners first find the tool paradigm that first the comjourn culture. After appraising the scalability attributes of the intended distributed applications, you
are now ready for Phase II: to use size and complexsiy mapping to narrow your choose further.

Fig. 6 includes both tool name and vendor name, since some vendors offer tools that support multiple scalability levels and apply to different paradigms. Tools are color-coded to indicate their paradigm and are placed on the scalability map to show where they are cost-effective. Any tool in the chart can be put in the other quadratic; the mapping it to posi-

som the "nection" or multi-seed con-effective user. The scalability may been four regions, whose boundaries are defined by the overall centers of consequence of present tools. Took designed for an angle application quadrant. Took for the most consepts applications for until to medium numbers of users are in the upper left. Took for the largest scale with high complexity are in the upper left. Took made at the "user yet," of the enabled numbers of users are the "user yet," of the unitable state of the state of the present the pr

sites and overopers, at some in the immune.

Chances are you will find more than one tool in
the chart that matches either your current paradigm
or the one you want to migrate to. Now the trial set
begins. In such trials, the tools should be stretched
in both directions to the fullest extent of the tomplexity and size scales relevant to you.

Theorem, Interpriced RAD nots are so inceptions that articular than excision undertaken. The decision instead revolves around the case of use for building windows. Since many such hosh are seld indirect, without the help of a field technicine, it is updished to the burst or construct and conduct the ruid. This effort usually costs more than the not's price tag, earlier than the tool's price tag, earlier than the properties of the properties of the price tag. The properties of the price tag are serious trade, caused by the properties of the price tag and the price of the price tag and the price of the price tag and the price of the pri

On the way to objects

As you build distributed applications, your challenges will multiply. On the hostuon is the formidable task of linking heterogeneous environments from different enterprises over a variety of intermistently connected communication networks. the factories, intranet and mobile users. To do this, you will need platform-independent applications that are distributed according to autonomous rules that define the criteria under which processing shifts

among resources to optimize resource use and availability. There applications will be built with objects and maintained by continually changing individual objects and redeploying them in realisme. All objects will be capable of relating to any number of applications. In the distributed object world, individual

replications lose their meaning.

No tone in your enterprise may currently be thinking of distributed object environments, so you may be a study in ready in the book of force, and that such a study in temporary for feed of the control of the cont

ENTERPRISE SOFTWARE DIRECTIONS

if you exclude

object technology is quite beneficial

Add-on stamps Mail as groupware

Offers low-cost alternative to Exchange Server

By Tim Quellette

Groupware features without the That's what users of Microsoft

Corp.'s Mail messaging software can get with Conference +2.0 from Mesa Group, Inc. The Mail don uses that product's electronic-mail infrastructure to provide group discussions, document sharing, distributed applications

and electronic forms. Conference +2.0 appears in the Microsoft Mail environment as a set of folders and menu items. Version 2.0 has added full-text searching throughout conference

mote user support (see chart). Without Conference +2.0, "if or want to extend Microsoft Mail with groupware features, you are sort of stuck. You have to wait for Exchange, then move over to Windows NT and do God knows what to your systems covi-reament," said Geoffrey Bock, an analyst at Patricia Seybold Geoup

Exchange Server is Micr client/server messaging upgra to Mail that promises to incorpo rate some groupware features. Observers said migrating to Ex

switching to Windows NT serve and upgrading desktop PCs. Some users who are happy with

om conference folder views and subfolder groupings M s.o object store that supports OLE objects, controls

moont for Visual Basic, C++ and electronic forms applicat

tional replication, so changes can be mov

et to fork over that money right Pricing for Conference 42.0 eres from \$25 to \$75 per user, ding on the number of

eer at LCI International, Inc. in McLean, Va., said his firm's human resources department had checked out Lotus Notes to create a job posting application. But the

long-distance telephone-service provider already had 1,700 Mall cations in Microsoff's Visual Ba-nic and C++ that would run with Conference +2.0 to provide the ne features in Mail as in Notes

dware also runs with the Ex-image client. Munor said LCI ins to do that by switching to NT Server and moving to Ex ange in the next year

Newton, Mass-based Mess al so sells software to link Note uses and Internet . news groups with Conference +2.0 inki-

Forms automation sees future on 'net

Bank of Boston's chief financial officer was tired of signing travel hers. Day after day, another stack of papers landed on his desk requiring his signature. Finally,

"He cassed a mandate saying that he didn't want to see another er voucher," said Bob Nowsk, ector of systems integration at

Bank of Boston. "We have a total of about 77,000 [travel and enternent| forms a year, and we had to put in place a system that automates the whole travel and

reimbursement forms process. Bank of Boston turned to Jet-Form Corp. in Falls Church, Va. The company's Filler 4.2 software lets users access the most up-to date forms from internet and intranet servers.

Filler, which starts at \$80, includes support for Netscape Communications Corp.'s Client Plugin application programming into face. This lets users view, edit, save and route forms from within Netscape Navigator. Users can and data from the forms to a World Wide Web collection site

for processing and analysis. In Bank of Boston's case, travelers fill out their travel wouch on-line and send their receip with a tracer number to the accounting department. The electreaic voucher is sent via elecnic mail to a manager, who approves it and sends the voucher to the accounting department to Nowak said it takes a week to complete the process, three weeks less than the bank's paper-

The process is also linked to the company's database of travel-related information to discover

eful company travel trends.

This kind of forms automation toftware is going to play a critical role in enabling commerce over the Internet," said Gerry Murray. an analyst at International Data Corp. in Framingham, Mann. This technology allows transactions to take place much faster and at a much lower cost to cuta-

iog providers," be said. For example, as electr der form can go to pro billing and inventory all at once.

POEMS: Ode to open systems

Platinum's framework unifies systems management tools framework puts the company in

um Technology, Inc. is sending its open systems users a framework to link its products un-

The Platinum Open Enterprise Management System (POEMS) will offer a distributed manage ment system for Platinum's data-base development, database adagement tools. The POEMS En-terprise Councile, now in beta testing, lets users manage all est kinds of tools from our con-

race, Il., later this year will offe agrated security services and

part of POEMS. Other soft such as performance manage-ment, software distribution, job ement, problem resoluti rage management and enter-

emeal after that, company of

tion binge, and this tells custom ers that they're going to tie these pieces together," said Paul Mason, as analyst at International Data Corp. in Framingham, Mass. POEMS won't change any of Platinum's tools but will superimse object repository, file transfer and event-trigger messaging

hows no signs of slowing down. Earlier this year, the com purchased Prodes Software Corp. in Eden Prairie, Mint., which makes on-line transaction processing tools. Another recent Plat-

closer competition with other

open systems management tools such as Computer Associates International, Inc.'s CA-Unicenter and Twoli Systems, Inc.'s TME

mum conquest was Advanced Sessions Technologies, Inc./ Distributed Computing Group in Boulder, Colo., and its client server transaction manager software. Those two acquisitions are Pistinum's 26th and 27th in

technologies on top of the applica-tions, company officials said. AIG signs with Sybase in bid to stay ahead

CONTINUED FROM PAGE 51. week, policies quoted but not yet committed to and other main-

frame-based information that bears directly on the bottom line. With the new system, end users — from company pres dents to underwriters - will be able to get "whatever informs they want, right away, them-selves," said Jelf Stoll, senior vice president at AIG Data Center, Inc. AIG is looking to Powersoft Corp.'s PowerBuilder and from Cognes Corp. to cut applica-tion development time. "That means users get their needs met sooner," Stoll said. In turn, they can put new products on the mar

Sybase's SQL Server relations use management system will be used to create data waredata periodically will be copied User queries will run ag SQL Server databases from Win -ours, Stoll said

Popolane and Stoll say the contract was awarded to Sybase -

competitors reportedly included Oracle Corp. - as much on the hasin of business philosophy as technology prowess. "Vendors play leapfrog wit

technology, but openness to new ideas, corporate culture, vision and approach to doing be are more fixed, and we felt Se-

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security, 64

The Enterprise Network

ATM users seek integrated management

Cabletron, Fore Systems improve Spectrum, ForeView links

By Patrick Dryden

ome early ATM users said they need to manage these high-speed, switched circuits with the same tools they apply to the rest of their devices. And Cabletron

tems, Inc. and Fore Systems, ac. told Computerworld they plan to improve this capahilley next month.

That's when Cabletron will release Vertrum network m

tiorm and associated tools. Then administrators will be able to bunch an enhanced version of Fore's ForeView ATM element manager from Cabletron's over-

ment manager from inside the Cableton module offers users more were to control and cyals ATM gear from the two Asyn chronous Transfer Mode (ATM) partners. Also, Spectrum will now handle alarms and correlate circuits and other network com-

To do this now, some Spectrum users have figured out how to bolt Fore-View onto the platform. These overs said they are eager to get b integrated ATM

"Managing our 155M bit/sec. ATM backbone should just require one more plug-in mod-ule," said Barbara Manskant, director of information services at the Emory University School of Launching the ForeView ele-

Public Health in Atlanta

The school's network op launch ForeView from Spectrum 3.1 to configure and makes as ATM backbone that links 10 floors. Then Spectrum incorpo rates these ATM switch elements in its database to help operators monitor network relat

Stapler in better Rebing on ForeView in fine as ng as the tool does its job and

works easily, Measkant said, Tost we would rather have a single Cabletron covers ATM man agement needs through its mod-ule for Spectrum, but some users eler ForeView for device-level

"I prefer ForeView over th Cabletron module for ATM ad-



ministration and so look forward to seeing it fully integrated into Hills, N.S. Spectrum is one to two months," said John Availane, a telecomns service analyst at the Lucesit Technologies subsidiars

of AT&T Bell Labs in Murray ForeView soon will appea

more seamless to Spectrum oper-store and add new capabilities, according to officials at Cabletron in Rochester, N.H., and at Fore in Warrendale, Pa

Citrix offers alternative dial-up access

By Stuart J. Johnston When the Olympic Games come

to Atlanta this summer, city officials will have a message for residenta who work downtown: Don't even think about going to

During the three weeks of athetic competition, many Atlanta workers will be sitting at a deak at home, linked to their offices by

That also creates a dilemma: How do you give remote users access to local client/server and legacy applications without spending a fortune and still provide performance that is nearly as good as being on the LAN? me Atlanta companies will

opt for Citrix Systems, Inc.'s Win-Frame/Access multiuser application server for dial-up computing 'In the past, I've said you can't run legacy systems across phone

lines. It can't be done," said Wes Barlow, an operations and LAN mager at Creditor Resources. inc., an insurance company in Atlanta. WinFrame/Access offers users "acceptable" performance when they remotely access the company's Borland Internation

runs on the LAN, he said.

WinFrame/Access lets re sers run a simple client on their PCs, which lets them connect to

Benefits of using Citrix Winframe Acces

Try it for yourself

a Microsoft Corp. Windows NT Server box that runs users' individual Windows applications sessions locally. Only keystrokes. se events and sere

mance is nearly as good as

being there, according to five One user tried running data-

ses across Integrated Services Digital Network (ISDN) lines, which offer 128K bit/sec. band width. Even with 5-to-1 compression, performance was really slow, said Mark Marcos, director of new technologies at Imonics Corp., a systems integrator in Atlanta. He said using Wis-Frame/Access was a lot faster, even with 14.4K bit/sec.

Citrix in Coral Springs, Pla., recently started to ship the pack-age, which costs \$2,995 and includes a copy of Windows NT Server and 10 user licenses.
WinFrame/Access lets remote sers run Microsoff's Windows 95, Windows 3.1, MS-DOS and

Windows NT client sessions on NT Server, which come by using Citrix's specially developed communications protocol. -The server package requires a 486- or latel Corp. Pentium class

For example, customized screen displays will much Spectrum's presentation of the connection paths that carry ATM traffic. Also, an operator will be able to see both Spectrum's logical view of ATM network interfaces and Fore'n physical view.

Installing this con upn't require expertise in adapting applications within Spectrum, and ForeView will hook into Cabletron's ATM module to take full advantage of Spectrum mod ing, according to officials.

"Certainly a single platform for managing all network elements it desirable," said John Scoggin, a technical consultant at Delmarva Power & Light's Co. advanced technologies group in Newark Del. "ForeView will be just anoth er window to pop up."

Scoggin said he needs ATM support through Spectrum to prototype a test network, where an ATM server backbone will link application and database servers that support nearly 1,400 users.
Through the Fore/Cabletron

integration effort, operators mid be able to monitor these ATM circuits and SAP AG R/3 ap plications, along with 11,000 man aged objects throughout Dele va's network, around the clock he said



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SUPERFOMERS FOR YOUR SYSTEM.



Banyan aims to spin Web into Vines

By Tim Onelletta

Banyan Systems, Inc. wants to make it easier for Vines network users to access the Internet and exploit some of Windows NT's capabilities.

At the recent Association of Banyan Us-

ers International conference in Chicago, the Westboro, Mass, networking company amounced a development agreement with Incognito Software, Inc. in Vancouver, Brish Incognito Software, Inc. in Vancouver, Brish World Wide Web and Internet services seamlessly with Vines networks. Compa-

nies can keep their Vines servers and have Web access. Banyan also announced an alliance with Attachmate Corp. in Bellevue, Wash., to provide remote access to Vines networks via Attachmate's Remote LAN Node soft-

Banyan will replace its own Comm-Server enterprise gateway with Attachmate's Windows NT-based TCP server. This will give Vines users the option of us-

ing either Vines or TCP/IP

Baryan also is catering to the many
Vises users who run Microsoft Corp's
Windows NT. Baryan announced Street
Talk Access for Windows NT File and Print
Services and plans to develop an NT-safev
version of StreetTalk. StreetTalk Access
lets users access the file and printing feamars of NT who StreetTalk Street fall
furctory.

tures of NT wh the Street tast curectory.

"Baryan really reinfacced that their
direction is Vince and services on NT," said,
jim Bocker, president of PhilaBUG, the
Philadelphin Baryan Users Group. That for
cas may leave some Unix customers feeling left out, however, he added.

The vast majority of our users already have NT in their network, said Jeffrey Bernard, director of enterprise marketing at Baryan. We want to pull critical pieces of NT into the Vines network.



Success Revolves Around the Net Engine

The following companies arming companies, the communications and materiality applications are disappling from the disappling of the following developed by Edwidt-Mirrodomycomical following the Chartelland American and the Chartelland of the lands seemen of Section 4th and Section 19 for the Chartelland and the Chartelland of the lands are stored of Section 4th and Section 19 for the contract of the Chartelland of the lands are produced as the section of produced and temperature of Section 19 for the lands of the Chartelland and the produced and the section of produced and the section 19 for produced and the section 19 for an application are section 19 for the produced and the section 19 for at 1 400 ACM 2015 and check of an overtical and 19 for the section 19 for the produced and the section 19 for the section 19 for the section 19 for the section 19 for the produced 19 for the section 19 for the section



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Briefs

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Difference was a second will add a Note link to the version of its McSeries meaning in McSeries meaning author. The link, which let desire be the second protein the link, which let be the second transaction servers through McSeries, in shough available on IBMTy AIK and CS/2 pieces. The MPSIX releases of MCSeries.

Series will also support the later versions of that operating system Shipments start on March 29.

Wardson network developer Gootsik-Communications, Jac., in Morrovisite, N.J., has reached on agreement to deliver travelined on agreement Stans-Theister Systems in Combridge, Man. The information will be delivered own Gootsik's digital wireless networks. The ervices will be delived on the ervices will be almost at communicati whickle squeraters with disquisch operations. They will be offered in Boutsen in April and will then be engounded to other cities with GovWHAT LIGHTNING DID FORHIM, CAN DO FOR YOUR CLIENT/SERVER

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Windows NT network users get more security

Security Dynamics package requires log-in and password authentication and analysts said it is one of the first such

educts for the Windows NT environ-A new software package secures Window NT Workstation and NT Server-based net-

By Laura DiDio

works for local and remote users. Users

ACE/Client 2.0 from Security Dy Inc. (SDD) gives users of Microsoft Corp.'s

Windows NT Server and Windows NT Workstation two levels of login and password authentication to belp ensure secure local and remote network access.

ACE/Client 2.0 for Windows NT wor

with SDI's ACE/Server software and SecurID token-security products, said Eric Ogren, a product line manager at SDI in sbridge, Mass. ACE/Server is SDI's

ring. It runs Network on industry-stan dard Unix plat-forms such as Sun

management rosystems, Inc.'s Sun OS, IBM's AIX

and Hewlett Packard Co.'s HP-UX.
The combination of ACE/Serve ACE/Client and the SecuriD token comp nent is like an employee budge. Users enter a six-digit personal identification number each time they access the network; a light emitting diode device (about the size of a credit card) displays an access code that

lets users log on The technology provides more of an impediment to would be hackers because the access code automatically changes every

This type of function eller is important to early meets such as Kim Takayama, a network manager at American Cyanamid Agri-cultural Research Center in Princeton, N.J. The center is increasing the number of re-mote users who access the network, Takay-

"The ACE/Server and Client software has worked wonderfully for us," Takayama said. "Used with the SecurID token, it's very tough for anyone to get on the network and compromise security."

Takayama said he also likes that SDI's ACE/Server and ACE/Client software lets end users and network administrators use Server commands and management utilities when they log in. This means American Cyanamid's administrative tasks can be performed via NTs User Manager and

Frant Viewer utilities "It's a very smooth integration and a very practical one. Our administrators don't have to learn a different set of securitr commands," Takayama said.

Besides authenticating the us tv. the ACE/Server and ACE/Client pack som give administrators an audit trail that records all access attempts

Michael Howard, president of Infonetics Inc., a San Jose, Calif., consulting firm, said SDI's ACE/Cient software leads the pack in providing advanced authentication for Windows NT. In the past, Howard said, one of the biggest obstacles for users who wanted to implement security was the high price per seat

"It wasn't unusual for security software to cost twice the price of the PC. But at under \$150, the ACE/Client for Windows NT is very cost-effective and one of the more reliable products I've seen," Howard said. ACE/Client costs \$149 per PC;

ACE/Server pricing starts at \$2,450. The SecuriD token starts at \$34 per client



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Pan-European data network OK'd

Hermes, to start midyear, will use railway cable infrastructure phone provider in each European Commi

By Elizabeth de Bony agussetts. The European Commission recently up

European network dedicated to crossborder data traffic that primarily uses railway cable infrastructure.

The advantage to users is convenience:

sion country, they can deal with one source for data needs across borders. Hermes is an alliance of GTS Herr Instead of having to negotiate with the trie- Inc., 10 European national railways and Racal-BR Telecommunications Ltd. (Racal-BRT). It aims to be a carrier's carrier, used by public network operators, carrier consortia, cellular telephone companies and other authorized teles operators, according to the European Com-

Cross-border appeal
Hermes should also appeal to large European companies with cross-border commu-nications needs, said Rob Olierenshaw, an

analyst at CIT Research Ltd., a market researcher in London. The pan-European network will start op erations midyear. That's when the member states are required to end all national restrictions on the freedom of alternative in-

frastructure operators to supply services much as data transmission. European legislation approved earlier this year set July 1 as the deadline for mem-

The European Commission believes rmes may grab a large share of the market for pen-European data transport networks. But it will face powerful competition - such as the current national tele-

nications operators GTS Hermes, Inc. supplies value add telecommunications services; Racal-BRT supplies business and operational telecommunications services to the British Rail-

ways Board GTS Hermes is a subsidiary of the Global TeleSystems Group in the U.S., and Racal-BRT is a subsidiary of the U.K's Racal Electronics group. Within the European Union, all na

railway undertakings, except those from Portugal, Ireland, Daxembourg, Greece and Finland, are participating. The Swiss national railway is also part of the venture. De Bony is an IDG News Service corr spondent in Brusselt. Joanne Taaffe in the Neus Service's Paris bureau contributed to

this story Citrix

CONTINUED FROM PAGE 59

server with 16M bytes of RAM for the basic system and server software, and between 4M and 8M bytes of RAM per concurrent user session on the server. The client soft-ware requires at least 640K bytes of RAM on the end user's PC; 2M bytes are recom-

mended. Lower costs vis-a-vis other opti as Symantec Corp.'s PC Anywhere, are also a factor in informs ers' choice of Citrix.

"With PC Anywhere, you have to pay a b cease fee for every user who has a copy of the client software, plus you have to have a dedicated machine for each user who dishin," said Cortne Pappas, an account manage er at National Business Group Reseller, a large systems integrator in Atlanta. "A single Winframe/Access server can support



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5 workly rater wirmers

Dealth' Doests gift certifi-cates for alternative coller shop for 20 people that

Coffee Break

S. Matthews/Information Security Wachovia Bank

General Electric

R. Palaka/System Administrator NT

D Sarks/MIS Director The Jack Morton Co.

S. Syville/PS Team Administrator Morgan Stanley

S. Gallup/Systems Developer **Kmart Corporation** R. Higgins/Sr. Technical Fellow Federal Express Co.

Sony Magic Link" Personal

A. Kiel/ Manager of MIS Asmussen Waxler Group

For details on how to play Computerworld's TechnoTrivia, go to page 104 in this i

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The Enterprise Network

New Products

et Storage, Inc. has introduced Smart D Archive NetWarr Loadable Modale (NLM) 1.51 software.

ver, Mass., com-According to the Ando any, SmartCD NLM 1.51 software lets. users access data stored on CD-recordable media. It provides native access to CDs by presenting the CD storage structure as a

CDs and configuring devices are performed via a mean-driven interface or from the command line

Users can view CDs on the system as a single volume or individually with a volume that corresponds to each disc

CD readers and jukeboxes in one modifiable storage structure. Pricing for SmartCD Archive NLM 151

starts at \$495 and is based on specific devices in the CD storage structure. Smart Storage

(590) 523-3300

Optical Data Systems, Inc. has unveiled Micro-Infinity Plus, a switching hub for Ethernet and Token Ring LANs

According to the Richardson, Texas, company, Micro-Infinity Plus has 10 slots for Ethernet or Token Ring modules that support up to 180 Ethernet or 160 Token Ring users on one hub. It was designed for midsize workgroups on different floors of a building or remote sites connected by a

high-speed backbone. Pricing for Micro-Infinity Plus starts at

Data Systems (214) 301-3811

Syrius Research, Inc. has introduce RouteOne, an electronic mail application According to the Los Angeles compa Route-One is a workflow routing system. It integrates with Microsoft Corp.'s Mail, Lotus Development Corp.'s CC:Mail and Nevell, Inc.'s GroupWise.

It was designed to integrate with PC DOCS, Inc.'s PC DOCS Open for retrieval and management of routed documents. RouteOne gives E-mail users imm cess to documents for review, modification and distrib

RouteOne lets users watch the routing nce of messages and document receipts and requested actions. It lets users change routing sequences, add or delete recipients, cancel routing actions and deiete documents at any point in the process. RouteOne's pricing starts at \$89 per user

Sprins Research (310) 643-4550

CheckPoint Software Technologi Lad. has assounced CheckPoint FireWall SecuRemote, client encryption software. According to the Redwood City, Calif.

company CheckPoint FireWall Secu-Remote enables secure, private communi-cations by mobile and remote users through dial-up connections on the later net. The product encrypts data before it leaves the laptop and provides a client-to forwall connection. When the data reaches the gateway, FireWall software decrypts

the data and sends it to its destination in the CheckPoint · FireWall SecuRemote features support for dynamic Internet proto-col addressing and includes public-key

technology for near authentication.

CheckPoint Fire Wall SecuRemote works with CheckPoint's FireWall-1 Internet gateway software on Sun Microsystems, Inc.'s SunOS and Solaris, Hewlett-Packard Co.'s HP-UX and Microsoft Corp.'s Windows NT.

Pricing will be announced in June.

CheckPoint Software Technologies (415) 562-0400

Stampede Technologies, Inc. has an-notinced Remote Office Gold 3.0, a mobile ications product.

According to the Dayton, Ohio, company, Remote Office Gold 3.0 lets mobile users run IP and IPX simultaneously, so users can access office resources and use a network's Internet access through TCP/IP in one telephone call. It includes docking station support, corporate security features

and dual-mode modern supp Pricing for Remote Office Gold 3.0 starts

at \$1,095 for an eight-port version.

Stampede Technologies

(513) 291-5035

mountable Novell, Inc. volume. Administrative tasks such as changing

SmartCD Archive NLM 1.51 is deviceindependent. It lets users add and mix SCSI

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On-line services buzz with deals and debuts

By Mitch Wagner

he on-line services industry was chockfull of activity, confusing plot twists and intrigue earlier In about a dozen anno ments over a three-day period. CompuServe, Inc. and America Online, Inc announced alliances with Microsoft Corp.,

Netwape Corp. and other vendors. All the deals were designed to beef up the proprietary on-line ser vices' access to the Internet and attract more consumers. For businesses trying to mar-

ket their goods and services on the Internet, this was good ance because online services such as AOL and CompuServe can bring millions of consumers

to the Internet (see chart). Among the deals, AOL up graded its Internet browser offerings and announced a plan to Netscape and announced that horne the lava programming language from Sun Microsys-

"This is great," said Eric Goldreyer, president of lans & Outs, Inc., an Austin, Texashaved publisher of an Interset guide to bed and breakfast inns. It means AOL and the prominters naturally are netting it in gear, with browsers that will support functionality that users are interested in. Our site uses frames technology and Java applets, and, frankly, if you

come to the site via AOL currently, it's oot going to look that good," he said Changing fancy America Online, based in Vienna, Va., said March [1 that it will

offer the Netscape Navigator browser as a replacement to the inferior World Wide Web browser now offered with AOL. A day later, the company snubbed

Microsoft's Internet Explorer will be the primary browser for AOL, with Netscape Navigator available only as an option.

Microsoft, meanwhile, said it will bundle AOL access with the Windows 95 operating system and make the AOL icon available from the Windows 95 deskton - alongside the icon to brunch The Microsoft Net

Furthermore, America Online announced that both Netscape and Microsoft have licessed compression technology designed to work on both sudio and video on-line traffic. That means users might one day be able to use a single soft ware package for audio and viden on the Internet, rather than the current confusing array of incompatible software packages that handle video or audio but

CompuServe, based in Co-

not both

service subscriptions CompuServe 4 MILLION Prodigy

1995

on-line

1.4 MILLION Lexis-Nexis 744,000 ow lones 233,000 4 MILLION

Total subscribers: 15 million Source: Simba Information, Inc., Wilton, Conn.

lumbus. Ohio, has been active, too k recently announced a deal with Netscape not only to offer the Navigator browser, but also to make custom versions of the browser available for corpo-

CompuServe already pro vides intranet, networking and electronic-mail services for

more than 900 corpora Under the terms of the Netscape deal, those users will be able to customize the Net scape browser to point toward specific, preset laternet or intranet sites. Corporate users also will be able to redesign the browser to display their corporate logo.

No one knows how much data is on the Internet. Likewise, the average end user of an in

transt probably needs some help figuring out exactly what information is on the internal company octwork As companies build intranet applications

for processing data that is more complex than simple telephone directories or lists of health benefits, the need for search tools is becoming critical. A lack of an easy means to find important information could even nix a company's intranet plans altogether, some observers said.

Rescue party on the way Lost users aren't happy users, said Gordon

Benett, a lead consultant at Techne Group. Finding a needle of value in the corporate haystack is the central problem," Benett said. Techne Group, a World Wide Web consulting company in Wakham, Mass., is building an intranet for a large New England utility. Part of the project is thinking through a search-engine strategy. Techne relies mostly on free products downloaded from the Internet such as

Gimpse and Harvest. However, new Web servers from Netscape Communications Corp. and Microsoft Corp. could change that Benett said.

Microsoft's Internet Information Server

and Netscape's Enterprise Server both contain search mechanisms. For example, Netscape users are due to get search capabilities in two ways next month. One is a new

Search tools help lost users find 'net resources the other consists of built-in search functions in Enterprise Server 20, also priced

at \$995 This is extremely good news. What good is information if you can't find it? asked Tamas Dosakocs, a computer scientist at the National Library of Medicine as Search tools, page 74

Where on the Web? OpenText has started to market a search engine to intranet users. These other vendors have also begun to target IS:





Web server helps users manage, track site data

By Mitch Wagner

Pacific Coast Software plans later this moreh to appounce a database server for the World Wide Web, along with several other tools webmasters can add to their site maintenance Swiss Army knives.

WebCatalog stores data in its own database. In response to queries from visitors to a site. WebCatalog generates pages on the fly and displays them immediately

Fast choice

Matthew Steele, vice president of systems development at Paper Site in San Francisco, said he chose Web Catalog over software from Sybase Inc. and Oracle Corp. Paper Site is a San Francisco-based Web site where people can buy and sell paper in in-

dustrial quantities over the Internet. WebCatalog is by far the fastest Web sites, page 74





sites using a forms interface on

any Web browser; it doesn't re-

mire special software for upload-

ing. Users access a special uni-

form resource locator (URL)

connected to their site, which gets

them a list of all the documents on

a site. They pick one, then replace

it with new text and coding, which

is input using browser forms. The

Marietosh and will be available

for Windows NT by the end of the

SiteCheck is a kind of automat

ed proofreader for links from one

Web site to another. SiteCheck

be sure they actually connect to

lever kid to sit and click on links all

day to make sure they're accu-

rate." Hulbert said. "This is some

thing that site operators can do."

SiteCheck is priced at \$79.95

Saw Web sites on the other rod. By, companies hire a col-

ematically checks such links to

month. It is priced at \$39.95.

SizeEdit is available now for the

URL can be password-protected.



Source O'Reilly & Associates, Sebassopal, Calif.

Web sites

CONTINUED FROM PAGE 73

thing out there in terms of speed ing data to the Web," Steele said. The WebCatalog software was designed for any database applica tion. It stores data in a flat file and generates pages automatically when visitors to a site request information, said Grant Hulbert, vice president of engineering at Pacific Coast Software in San Diero. Stored objects can include text, images and pointers to multimedia objects stored sepa

WebCatalog costs \$695 for Apple Computer, Inc. systems. Pacific Coast (http://www. nacific-coast.com) has also announced SiteEds, an editor for Web sites that works within any forms-capable Web browser; and

SiteCheck, which allows users to lest out connections between two SiteEdit lets users edit Web

and will be available at the end of March for the Macintosh. Web is a spin-off of Cambridge

ys in to Web

ht in to I

chnology Group.

ternet access Encore Computer Corp. in Fort Landerdale, Fla., has in-

luced a software/network ation that prostored in its Infinity SP disk at rays that support mainfrances and Unix servers. Internet uta Facilities includes a king feature that lets co sible to World

Hitachi brings personal touch to Web browsers

Hitachi Soltware plans today to amounce a software tool that allows users to create personal indexes of the World Wide Web. ZooWorks is a Windows 95 ap

plication that runs alongside almost any Web browser, tracks which pages a user visits and creates a database of the text of those pages on the fly Later, the user can call up Zoo-Works from within a browser to look up sites by keyword and

subject. Userscheer

The tool should come in handy. "I lose stuff all the time on the Web " said fra Machefsky, an analvst at Giga Information Services Inc. in Santa Clara, Calif. "It takes a while for me to find material that I found some months ago and lost

and now have to find again." Macheisky said the softwa serves as a complement to public worse warch engines such as Yahoo and Alta Vista from Digital Equipment Corp. ZooWorks lets researchers and frequent internet

users answer the question, "What was the location of that site I saw a while ago about ...? The software lets users delete

New product



oms supported: vs 95 client ble from any Web rser on the same Availability: March 25, beta version; product version is due out eight weeks later;

evailable in kine Price: Beta version is free; product version is \$49.95.

references to Web pages that they find useless, amotate entries for

me they need. Tolkey noted.

lication is what counts. "At the

The structure of an interface or

end of the day, a search engin

cannot replace a well-place Web servot interface," he said.

Web pages or organize references to pages in folders according to subject or by any other hierarchy. User Jim Gurfein, co-founder of the Diners' Grapevine, an on-line restaurant directory in Port Chester, N.Y., said a user-driven indexing tool such as ZooWorks could be pretty handy. "I think it's won-

derful, given the availability of a piethora of information," Gurfein However, what users really need are screening tools to sepo rate the useful sites from the fluff.

ZeoWorks uses the Topic search

engine from Verity, Inc. to index the uniform resource locator and full text of every document visit ed. A free beta version of Zoo Works will be available March 25 at http://zoosoft.com. The software will be generally available within eight weeks after that priced at \$39.95

By the end of June, the compa ny plans a server version that will index the Web and corporate intranets for workgroups.

Hitachi Software is a busi unit of Hitachi Computer Prod ucts America, Inc. in Senta Clara

Where to look

The intranet journal is an active on-line discussion group than tackies hot button issues for Internet curious IS manager Creck out http://www.britl.com

Search tools help lost users can't help overs find every-

CONTINUED FROM PAGE 73 ends Md Fukrum Technologies, Inc. plans to announce this week a set of search products compatible

with popular Web servers and targeted at intranet builders. Digital Equipment Corp., meanwhile, plans to make its Alta Vista engine available to information systems groups that create intranets. But users must examine what

they get for their search dollars. The search tools in Netscape's Enterprise Server, for example, index information on only a single Web server, Catalog Server can manage data stored on several serveres

The ability to comb information for enocepts, rather than just key words, is also important, said Zao Tolley, an information center and less at a large U.K. company. That way, users don't have to know the precise name of a document or topic they are seeking, he said. But even thorough search en

The search is on

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The Internet

aw Products

InText Systems, Inc. has announced In-Text WebPack, a tool for World Wide Web site development.

According to the San Francisco company, In Text WebPack lets users build the dynamic, searchable Web sites through a point-and-click interface. It also lets users a

automatically convert Windows documents in more than 80 file formats into Hypertest. Markup Language and generales hyperlinks between documents. It stores documents in folders and builds an index to make the documents searchable.

maze the documents sear content of the first WebPack includes a retrieval engine that helps users find specific information on their Web site or company intranet. It also includes document summarizing and natural language querying features.

Pricing for InText WebPack starts at \$12,500. An evaluation copy is available at http://www.intext.com.

► In Test Systems (415) 391-5290

NetCarta Corp. has introduced Cyber-Pilot Pro., a navigation tool for the World Wide Web.

According to the Scotts Valley, Calif., firm, CyberPilot Pro operates alongside

most popular Web browsers. The product lets users create maps of any site to help pinpoint exact information. The maps are condensed visual representations of the

condensed visual representations of the structure and content of Web "spaces." These spaces can be an individual site, a collection of sites or a collection of individual Web pages unified by a common theme.

CyberPilot Pro was designed to give users Web management, advanced navigation, site analysis and structure-based search and retrieval functions.

CyberPilot Pro costs \$100.

NetCarta
(408) 461-8820

Quarterdeck Corp. has introduced Web-Compass Personal Edition. a metasearch engine that prepares an index of search results and an abstract of all query data

through a point and click interface.

According to the Marina del Rey, Calif.
company, it works with all major World
Wide Web browsers.

It also requires an Intel Corp. 1486 or higher processor, 8M bytes of RAM and 3M bytes of disk space. It runs on Microsoft Corp.'s Windows 3.x, Windows 95 or Windows NT.

WebCompass Personal Edition costs \$39. A free trial version is available at http://www.quarterdeck.com.

Quarterleck (310) 309-3700

Fujitsu Microelectronics, Inc. has introduced its ISDN Internet Surfer PC Card, an integrated Services Digital Network terminal subster. According to the San Jose, Calif., compony, the card gives mobile users high-speed access to the Internet. It is Windows 95

access to the Internet. It is Windows 95compatible and was designed to offer data transmission rates two to three times faster than those delivered by a conventional 28.8K bit/sec. modem. SDN lateranet Surfer includes a service

ISDN Internet Surfer includes a service map that illustrates the regions of ISDN availability across the U.S. It costs \$369.

Fujitsu Microelectronics (408) 922-9000

Product short

Samungs Software Ltd. in Doncaster, Autralia, has announced Egar, a commercial supplet less in Microsystems, Inc. is Java suppleted in Microsystems, Inc. is Java suppleted in Microsystems in Microsystems of Microsystems o



COMPUTERWORLD MARCH 25, 1996 (http://www.computerworld.com)

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Security principles are being developed to suffe IS professionals, 80

Corporate Strategies

Nasdaq tool pays dividend

WinRunner speeds quality assurance testing

TRUMBULL.CONN

reces checking the quality of the software rolls out to its subacribers was a og exercise for The

og Stock Market, Inc. Now thanks to an auti ing totil, the all-electro ck market is seeing 8 to 1 pro-

ctivity gains. In the past, Nanday's quality asurance analysts spent hours test-ng individual workstation and

Nasdaq's "acid test" and bit-sp verification tests would enre that data in each application ogram field was accurate and aldn't, for example, change

To streamline its testing proce-ures, Nasdaq began looking for an automated tool. There were plenty on the market, but Nasdaq was able to find only one that haned Neuron Data, Inc. graphical

user interfacés (GUD. Nanda uses a Neuron GUI as a front end

to its Nasday Workstation II appli The tool that supported Neu-on Data was WinRunner from Mercury Interactive Corp. in

Sunnyvale, Calif., according to Robert J. Hughes, director of es at Nanda To ensure Wink

eness, Nasdaq paid \$75,000 to test the software over a 90-day period beginning in November 1994.

Time-saver its first functional test with the tool came in early 1995 with its ed Confirmation Test (ACT) system, a Tundem Comrs. Inc.-based trade reconcili tion system. With Wink Nasdaq tested 2,100 lines of ACT code in 80 minutes. Manual test-ing typically would have taken five

With this tool, we're getting better-quality products by being able to regression test more effec-tively," said Anthony W. Szerszen.

Regression testing makes sure hat a new application has no ef-ect on other applications in the

Since purchasing the software r another \$60,000 last spring Nanday has used it to test its all-Order Execution System (SOES) and SelectNet. SOES is an autom

m used for orders of up to 1,000 shares. SelectNet is an online screen negotiation and execu-tion service that lets companies end orders of any size for any

Nandaq's end uners as "It's much easier to use [Winhanner] than to do manual re-ression testing," said Carson La quality assurance analyst.

Randard's quality assurance analysis
Robert J. Hughes, left, and Authory W. Szerszen kore see

He has used WinRunner for the past six months to test Nasdaq's CT and other syst

Show and other Nasdaq techni cians need to remain focused on moving the world's second-largest stock exchange forward - especially given Nasdaq's re-cent problems

Government probe
Nasdaq is being investigated by
the Securities and Exchange on and the U.S. Department of Justice for the wide reads between the "bid" and "ask" prices for Nasdaq stocks.

brokerages at the expense of was originally created.

"Rolling out new applications is important to (Nasdaq), but the heat is on their policies right now," said Larry Tabb, a technolony analyst at The Tower Group, a nancial services consultancy in Wellesies, Mass.

This summer, WinRusner, will be used to test a Tandem-based molication that shows the most recent sale price for a stock and other historical informati

Wireless MLS is moving in ARDIS Co. network in Atlanta is the moment, but a budding wire-Tom LeCain, executi



ters more mobility. Freed from the need to return to to check a listing, brokers are more productive.

Let's say you have been pro to an important new position.

The had news is that in just a few weeks you have to move to a city halfway across the country. You call your local real estate agent, who whipe out a laptop and es a wireless connection to s

Within in hour, you and the gent have whitted down a large at of properties to a handful of interesting prospects, and the agent sets up appointments for you to view them during a weekend visit to your new town.

less Multiple Listing Service MLS) spearheaded by IBM's Wireless Group eventually could lead to just such an efficient means of house-hunting. In a few rities, users who have portable devices can already look up property information in participating MLS

The wireless MLS is being tested in sections of New Jersey over the RAM Mobile Data USA LP network. It is being tested in Phoenix using the CellularOne network via Celitalar Digital Packet Data. A wireless MLS program via the

lent of Northpoint Proper ties in Roswell, Ga., has outfitted

12 agents with wireless laptops He said wireless MLS is ideal for the hot Atlanta real estate market. which is noted for its rapid turn The wireless MLS allows us to

be as productive as possible and to get information as quickly as poseible." LeCain said. "In this business, we work astronomical hours

— 70, 80 hours i week. Not only does this wireless system make us

MARCH 25, 1996 COMPUTERWORLD

Security plan hopes to give IS protective custody

By Gary H. Anthes OBLANDO PLA

Perhaps the most common short coming in a company's security m is that it has no plan. That will be a lot easier to fix when the Generally Accepted Sys-

tem Security Principles (GSSP) roll off the presses or are posted at a World Wide Web site near

The GSSP are intended to guide vendors and users and will join the ranks of similar guide-lines for the medical, legal and ac-

more detailed suggestic available later this year.

At least one customer has put the GSSP to good use. Consumto, a sed an early draft of the GSSP to help migrate its mainframe based security plan to a client/ server environment. "I used their principles as a template," said Wes McClean, manager of securi

planning. McClean mid the idelines were very useful and gave the company "as organizanal structure in which to place A recent survey of more than

7,000 organizations turned op widespread support for the GSSP sals. But it also showed sed awareness of, and support for, the GSSP among top managon (see chart). Development of the GSSP was

a high-priority recom in "Computers at Risk," an influ ential report about computer security published by the National esearch Council in December

The basis of a profession is to rofess, to declare in front of others that you will shide by certain principles," said Kristen Noakes-Fry, president of Noakes-Fry Associates in Seminole, Flu., and a

also pay a monthly charge

charged for network use during

testing, said be is concerned

out airtime costs linked with

But ARDIS said they may be

harring us a flat fee of \$65 for un-

limited use each month, which would be great," LeCain said.

"The everyday [agent] might

we trouble configuring the at, as well. I'm computer-

savey, so I set up the systems for

my office, but I think concern about technical aspects of this is

slowing implementation for oth-

Michael Boyd, manager of busi-sess development at IBM's Wire-

less Group, said the system is bet-

ter for busy real estate markets.

But he said that interest from acents across the country is high,

as "Computer systems must have logical and physical access controls." A druft of these principles is set to be released in lab. At the lowest level will be to detailed, frequently changing

drasted the GSSP. The private sector is driving the development of the GSSP, that includes top managers who are increasingly concerned about information security. The boardroom asks, 'Is there one document we can turn to to see if we are in compliance? The answer is, No, there is not," said Will Ozier, pres of OPA, Inc. in Petaluma, Calif.

Moving aboad Oper is chairman of a 30-per

mation Systems Security Asso tion in 1992 to develop the GSSP. He recently outlined progress on the GSSP at the MIS Training In-

The security principles will on upy three tiers in a hierarchy. At the too are pipe "pervasive risciples" such as "Informat rity accountability and remonohility should be explicit." rse are included in Draft 2.0. At the second level will be 50 to 75 more detailed principles such

committee formed by the Inforstitute conference here on open

- COL TAL PRODUCE, CASE rinciples such as "Password out be at least eight digits long.

The GSSP committee hopes to be gin drafting these guidelines by the end of this year and complete m a year later, Ozier said. The security principles will car ry some risk, experts warm "When they become the stat-

legal implication," said Hal Tipton, principal at HFT Associates, Inc. in Villa Park, Colf. "Vendors can be liable for not

building the principles in to their products, and users can be held liable for not following them," said Tipton, one of the authors of dards for due care, there will be a

Wireless MLS of \$20 for access to regional MLS Despite his enthusiasm for MLS, LeCain, who ham't been CONTINUED FROM PAGE 79

more productive, it gives us more

of a life. Not having to spend so much time at the office gives us more free time Real estate agents can connect

from anywhere to get new listings and other kinds of informati they don't need to return to the office or warch for a telephone line for dial-up access, LeCain said. This raises productivity, he said. The wireless MLS, which is

sold through Inacom Corp., a rewiler based in Omaha, comprises IRM notebooks and wireless modems and software from Software Corporation of America in Stamford, Coan. IBM notebooks come bundled in the deal, but other poks can work with the ser vice, according to IBM officials. Pricing is still being set. Agents

and he expects there soon will be wireless MLS programs up and Group for \$190 per month. The running across the country. COMPUTERWORLD MARCH 25, 1996 (http://www.compu

Vigility of Harris

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Everybody knows about the year 2000 problem, but The Equitable decided to



Face upto it

for fixing The Equitable Life Assurance Soci- to the late 1800s as new business. ety's year 2000 problem - he helped create the mess 20 years ago.

er Assisted Policyholder Service (CAPS) sys-centuries.

Bill Born has great credentials tem continued to report policies dating back

Born discovered that the problem was that CAPS, similar to most other systems As a young programmer, Born was as- of the day, used only two-digit year codes, signed to find out why the insurer's Comput- so the system couldn't differentiate between

BY ROBERT L. SCHEIER

Face up to it

CONTINUED FROM PAGE KI Because the oldest policy in the system is from 1863. Born

had changed CAPS to regard policies with a date over "50" as old business. That would work until the early 1960s, when "pobody was expecting these sysless to still be around," he

But CAPS is still around, ac counts for \$1 billion in annual premiums and hit the wall again in 1993, This time, Born says, 'it his me that I had put the

problem in." The wake-up call gave The Equitable a head start in fixing CAPS and other applications that will run into trouble by the year 2000. The firm was also lucky because it stiff employs nation systems veterage who know CAPS and insurance inside out. Its ambitious an proach to solving the problem

seems to be working because the New York-based company finished a pilot of its year 2000 conversion in December, and team members are 87% confident that they will finish the work by year's end.

Advance planning

The plan for CAPS Millennium, as it statue to be called, was unwrited on Nov. 1, 1994 after seven munths of work by a team headed by division manager Jim Fox. The team proposed split ting the year 2000 fix into manageable subtasks and improving CAPS at the same time

Fox and his team didn't want to rewrite CAPS on a client/ server architectury, which Senior Vice President and Chief Information Officer Lenn Billes estimates could cost upward of \$250 tullion - with no guarantee it could even be done. The team was also skeptical of vendors' "black but" solutions of tak ing CAPS code and returning it year 2000-compatible. Even if the vendor delivered. The Equitable would still have to figure out which fields to convert and debug the interfaces among the 1 SOO CAPA modulos

The team's solution reminds Born of the joke about how to out an elephant: one bite at a time. For proposed correcting

CAPS one modele at a time with Cobol "bridges" analyzing data streams between corrected and uncorrected modules and doing any needed translation. This means that work on individual modales can proceed without waiting for other modules to be fixed. Once the code is corrected, the team will convert the 2.1 million master records in the CAPS database using the same bridge pro-

Fux also needed to make the elephant appetizing. Early cost estimates for the fix ran upward of S8 million. a high price just to fix a problem. Fox stayed under the budget radar until he hill a defensible plan. He took tech-

weapon

The CAPS team considered four ways to solve the year 2000 problem. They chose the first, another choice might be best for you

Fix the system by converting evising code and data

WHEN TO CONSIDER IT siem is mission critical, prohibitive time or cost to marrie we good in house expense

THE APPROACH place the system

WHEN TO CONSIDER IT in G a commodity application with latter value add for your company. You are sure the vendox (or your staff) can

Run your homegrown code through an outside service fam's

WHEN TO CONSIDER IT You have confidence in the window and understand was \$ 100

have to do a major analysis of the desting application and

Lower if to the software company that developed the WHEN TO CONSIDER IT

Wendor is large and viable enough to do the conversion. You'll still have to retrofit the new version on top of any customizing. you've done to the assuing version

> estimates will cut the Phase I cost to just under \$2 milion. In return, HexAware gets experience and an inside track on future Fox's team did a pilot on the "automatic collections" portion of CAPS, which consists of about 75 modules that represent a cross-section of code and platforms found in CAPS. As part of the pilot, the team also revised four separate test environments to reflect the expanded year fields. Despite the immaturity of

the automated tools and the incompatibilities between the old and new versions of Cobol, the pilot went into production on schedule, and Fox says he expects the CAPS code conversion to be done by year's end. The only real risk, Born says, would be losing key members of The Equitable or HexAware teams The year 2000 work "is just a big maintenance project." Johnson says, but that makes it sound easy. The Equitable was in a good position because it understood CAPS, owned the source code and had proven maintenance methodologies and test states. When an information technology organization doesn't

> Some critics argue that The Equitable risked failure by overloading the year 2000 conversion with other work Born admits the team "ago nized" over that but points out that the other changes open up new business paper

We've got 2 million lines of code." Johnson says He've got to look at them all and recompile them all' just to change compilers and the date elements. "Once we've gone through this, we don't want to look at all that again." Eating an elephant once is enough, no matter how mony pieces if's in.

Scheierisa Computerworld senior editor. Management.



taral districtor Ron Johnson and senior systems analyst for Cherichella uff other proj ects so planning work wouldn't require formal funding. The resulting proposal not

unly included expanding the date fields to four digits, but also expanding other elements such as the face amount on polcirc, which determines how stuch the invared can be paid in case of a claim. The team also proposed recompiling the appli cating so it no longer would rely on a Cubol compiler, which IBM will stop supporting this summer. Fox's proposal reads like a marketing piece with its own logu and the words "The Time is NOW? Enhancements.

not the date problem, were the craterpiece of the proposal Bills approved the first, or risk avoidance," phase in late 1994 but ordered that its \$2.6 million price be cut. He was al ready exploring the idea of ou

ing offshore programmers to lower information technology costs and drove a hard horesin with HexAware Technologies. Inc. in Princeton, N.J., and Bomboy, India, HexAware is doing much of the work in Phase I for little or no profit, which Fox

Consider & B Date in a

ward are: s) Great ide

Database dynamos

ev and Analysis Assessed to

re on a 66-MHz 486-based PC. The s ns in Pittsburgh. 15 just leaded the est's data onto A. B. Data's Hovelt, Inc. rork, Plouff says.

ger at the direct rese ate Life Insurance Co. in Northbrook, Il The division's everage premium paid per

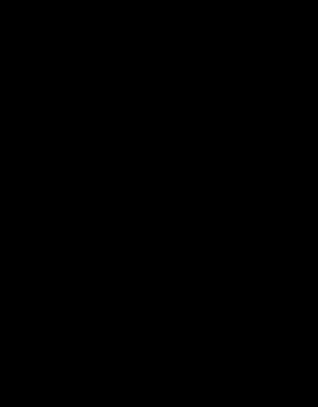
How? Behrens' team created a database at consolidated information on each cu cts they've had with the lesurer, th ses to part promotions and des

to pitch and how they pitch them is

ow customers respond. "Instead of a con more contacts with people and more cus ed contacts. They are the kinds of ca sople west," Behrens says. The 15 role? Not much. Metromali Corp.

ice bureau in Lombard, III., created and doc. - Allen E. Alter





Because the oldest policy in the system is from 1893, Born had changed CAPS to regard policies with a date over "82" as old business. That would work til the early 1990s, when "nobody was expecting these sys-tems to still be around," be

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Choose your weapon

The CAPS team considered four ways to solve the year 2000 problem. They chose the first, another choice might be best for you.

THE APPROACH Fix the system by conventing existing code and data.

NEW TO COMESIDER IT m 6 mason-critical; prohibitive time or cost to rewrite

DI TO COM commodity application with latte value-add to my. You are sure the vendor (or your staff) can

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EN TO CONSIDER IT nce in the vendor and understand you'll still e to do it major analysis of the existing application and

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'risk avoidance," phase in late 1994 but ordered that its \$2.6 million price be cut. He was already exploring the idea of us-ing offshore programmers to lower information technology costs and drove a hard bargain with HexAware Technologies

Inc. in Princeton, N.J., and Bombey, India, HexAware is doing much of the work in Phase 1 for little or on profit, which Fox estimates will cut the Phase I cost to just under \$2 million. In return. Hex/sware gets experience and an inside track on future

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"We've got 2 million lines of code," Johnson says. "We've got to look at them all and recompile them all just to change compilers and the date elements. "Once we've gone through this, we don't want to look at all that again. Eating an elephant once is enough, no matter how many

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UNISYS

Don't let Jan. 1, 2000 be a day of wailing and gnashing of teeth. Start solving the year 2000 problem now with the help of these user groups, on-line sites, publications and events.

BY ROBERT DIETERICH

ISSUE/USER GROUPS

Contact: Steve Hamil

Computer Horizons Cincinnati (513) 769-3355

Though established with belp from Comnuter Harimas, a year 2000 service provid er, this user group was designed to be independent and nationwide in scope. Membership isn't limited to the company's clients. and representatives of more than 50 large nounies have joined so far.

Arizona Millennium Group Contact: Stan Price City of Phoenix Information

E-mail: sprice@ci.pt

At wendor seminars and other year 2000 events, Price kept running into the same people and managers from other IS depart ents in his region. He reasoned that regular contact among this group might prove more helpful than anything else. The group has close to 30 members. There are no fees for joining.

Midwest 2000 Share Group Contact: Len Schulte St. Louis (314) 827-2264 E-mail: schuitelf

Brainstorming is the key activity at this regional group's bimonthly meetings. Schuke says, although one vendor usually is invited to give a short presentation. Companies are asked to pay a \$150 fee to help administer the group. Meeting sites ro

The newsletter "Tick Tick Tick" (see above) provides a list of people who are forming - or want to form - new year 2000 issue/user groups.

ON-LINE RESOURCES

Year 2000 Information Center http://www.year2000.com.

This site is maintained by Peter De Jager. self-described "awareness guy" for the year 2000 issue [CW, Nov. 20, 1995]. It provides

information on tool vendors and service providers, lists articles and events and answers frequently asked questions.

Year 2000 Mail List Send electronic mail to listmanager@ hookup.net with "subscribe year2000" in the body of the message.

Also from Peter De Jager, this discussion list targets managers who deal with year 2000 issues. It gets hundreds of post ings every week and a lot of practical

white REPORTS

"The Year 2000 and 2-Digit Dates: A Guide for Planning and Implemen

This 180-page "customer guidance paper was published by IBM last October. It is

TRADE ASSOCIATIONS Information Technology Associats of America (ITAA) Contact Deborah Head ITAA

IBM Web page: http://www.a390.

particularly useful for finding out what IBM software is or isn't year 2000-ready, but it

also provides a solid introduction to the issue and a good bibliography.

ibm.com:80/stories/tran2000.

rance Co., the year 2000 conversion effort is part of an effort called the Survival Project. "If we don't do this, it's shat the

ect. Twe son side that, as state the lighth off and polents, may have Code, a year 2000 project leader. Code any Manahdatai in Springfield, Mana, has been served your 2000 insert own more than 10 years. The information server of the year 2000 insert for more than 10 years. The information server of the year 2000 insert for more than 10 years. The information server of the year 2000 insert only a became clear. Cote carps, that "we needed a more concentrate tory, it became clear. Cote carps, that "we needed a more concentrate offerth in this area. We had to pick up and identify year 2000 as a surrection."

at insue. Manablutual has hired three service providers to do the actual work. The job estulis reviewing 45 million lines of code companywide and making changes as needed. Them there's the instaing of the converted software and its implementation. Manablethan a schoolac calls for completion of the Sarvival Project by the end of 1909, providing or one-year

cushion. Cote's abvice to other IS professionale' "Start now. Don't wait. Tak our word for it. There is a problem, and you need to get involved." Cote says that attending a conference can be a sice pince to start, "and the year 2000 Web air has a lot of good staft." Hyou work in a IBM abop, be adds, the IBM year 2000 white paper is "very unclai."

Dieterich is a freelance writer in New York.

http://www.itse.org

A trade association for software vendor and service providers, ITAA has publis a short white paper and a buyer's guide for year 2000 tools and services; a directory of year 2000 wendors in in the works. The pub lications are free. It has run several year 2000 seminars at government agencies and plans another in Washington in April.

PURI ICATIONS

"Tick Tick Tick, The Newsletter for nial Management" New York (800) 643-8425

Subscriptions are \$75 per year for this quaterly publication. Bill Goodwin, editor of this independent newsletter, provides disthis independent newsietier, provides dis-cussions of conversion tools and service-providers, tales of the experiences of year 2000 project managers, event listings, ven dor advertisements and gossip. He is help ing regional issue/user groups form.

CONFERENCES AND MEETINGS

Year 2000 Conference and Exposition April 3-4, Chicago Sept. 11-13, San Pranci Contact: Linda O'Donnell Software Productivity Group Westboro, Mass. (508) 366-3344, ext. 244 http://www.spgset.com.

Insurance, Banking & Financial Services: IT Systems Conversion for the Year 2000 June 17-18, B

Contact Sarah Bock IBC USA Conferences Southboro, Mass. (506) 481-5400, ext. 252

Year 2000: Insues and Answe June 19-20, Boston July 31-Aug. 1, Austin, Texas Oct. 3-4, Orlando, Fla. Contact Digital Consulting, Inc. Andover, Mass. (506) 470-3880

me://www.dciex E-mail: confreg@dciexpo.com

COMPUTERWORLD MARCH 25, 1996 Desp.//www.comp

In technology, there s a fine line between news and history.





This is news.



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Globalization.' Increased cuscomer expectations. Rapidly changing technology. All of these hurdles add up to a major challenge for IT executives and the creation of the distributed enterprise. At ETS '96 you'll learn how leading edge companies are responding to the increasing pace of change and how they're facing a more competitive global marketplace. These four hard-hitting,

provocative panel sessions of high-impact interaction will focus oo practical applications of emerging technologies.



Panelists: Jim Banister, Warner Bros. Online • Brian Gas and Electric • Marc Boyd, United Video Satellite Group * Steve Dieringer, Banc One . Sorven Sayre. Lotus Development Corporation

Discover what this phenomena means to business and the distributed enterprise. Find out if the Internet is an aging technology looking for problems," or the prototype of a new world of networks that will change

the face of business.

Dodge, UPS . Alan Guibord, R.R. Donnelley & Sons . Tom Thomas. 3COM Corporation Examine how the latest in

> mented to meet challenges faced by top corporations worldwide. Hear candid discussion on building infrastructure, deploying high-speed communications, internerworking and implementing new broadband applications. which combine voice, data

and images.

converging communications

technologies has been imple-



Panelists: Richard L. Hudson, Global Maris Inc. • Minchell Kerson Powersoft Corporation and Sybase * Gary R. Osborn. Hughes Space and

Connecticut Mutual Life Insurance Company

in application develope including the Killer app of the "90s," data ware-

Listen to pendists seveal which new advances in application developm work and which don't

Solution Labs

critioners Forums, Solution Labs, and

The ETS Master of Cormonics, Scott Shuser, the founding of flusions Well conference program, as well as largouse produces role for flusions Well conference program, as well as largouse produces role for flusion of flusions and the produce of flusions and flusions of flusions and flusions of flusions and flusions of the programment to provide horn insight and flucions (no-engre surveys. The ETS programment your flusions objectives and provide percea-poor serventing.

Communications Com
Roger Thibodesa, Explore the latest advan

ing PC

Time is



Executive Track



has been appointed vice present and chief information of-Ricer. Hammer joined the Landover, Md., bookstore chain in 1994 as assistant vice president and director of informa-

tion systems. Hammer previously served as a director of MiS at Circuit City Stores, Inc.

x D. Hopper, the retired is chief at AMR Corp., as been named a director at large by the Micro-lectronics and Computer Technology Consorm in Austin, Texas.



Sears, Roebuck and Co. in Hoffman Estates, III., has pro-moted jorry Millier to the new post of vice president, logistics systems. He reports to joseph Smialowski, Sears' ClO. Miller was senior director, logistics systems at the retailer.



blevision Systems Corp. re-ntly promoted Thomas C. in to senior vice president and CiO. Previously, Dolan was vice president and CIO at the Woodbury, N.Y., cable television systems provider.

berts and Michael Livelsi are now vice residents of information technology at First. Anntauk Securities Corp., a subsidiary of Mon tauk Financial Corp. Roberts, who previously worked at Belicore, will be responsible for First Montauk's systems and software and will evaluate new technology. Livoisi will run the Red Bank, N.I., hmkerage's database and networks. He previously worked at AT&T Corp.

Larry L. Thomas is the new vice president of IS at ctronic Clearing House, Inc. Thomas has held management positions at Unisys Corp. and Burroughs Corp. He is also an author and speaker on eless communication standards and internetrelated subjects. Located in Agoura Hills, Calif., Electronic Clearing House is a provider of point of-sale equipment, credit-card processing and check guarantee services.

Kenneth Craig was named vice president end OO of Philips Consumer Electronics Co. in Knox-ville, Tenn. The company is a division of Dutch giant Philips Electronics N.V. Craig led a doubl life at his last job: He served as president of SAP Brazil, while he was a managing director at Origin Technology and Business, inc. in Murray

Ann C, Sullivan was named CIO at Maimenides Medical Center, a hospital in New York. She was formerly the hospital's chief operating officer and chief financial officer.

e National Association of State information asource Executives has announced the following appointments among its members: Doug Coute has been named information Manageme Coordinator for lows. This is a new position within the Department of Management, John McDe ell has been appointed deputy director of the



May workshops

A listing of workshops for 18 managers. Most workshops are also offered later in the year in other cities. To find the time and location most convenient for you, call the contact phone number.

neuniciting with 15 Clients and Con-ners. Boston, May 2-3 — Fee: \$750. Contact: QED Information Sciences, Inc., Nellesiev, Mass. (800) 395-1109.

Systems Analysis and Design for Informa-tion and Business Professionals. Los An-geles and Princeton, N.J., May 6-9 — Fee: \$1,750 to \$1,550. Contact: American Ma agement Association, New York, N.Y. (800) 263-9699-

Connecting to the World Wide Web. Philo-delphia, May 7-8; Dallas, May 13-14; Boston, May 20-21 - Fee: \$895. Contact Data Tech institute, Clifton, N.J. (201) 478-

he Crossing the Chasm/Inside the orgado Seminar Series, Chicago, May 7-R - For managers and those incorporating information technology in the enterprise. Fee: \$1,285 to \$1,395. Conta Marketwise, Inc., Boulder, Colo. (800) 300-3846

Business Process Re-engineering: Strate-gles, Techniques and Tools. Washington, May 7-so - Fee: \$1,995. Contact: The Learning Tree international, inc., Resto Vs. (See) 843-8711.

Information Management: The Next Gen-eration. Boston, May 7-so — Fee: \$47510 \$1,950, depending on days attended. Contact: Delphi Consulting Group, Boston, Mass, (617) 247-1025-

Project Management: Skills for Success. Washington, May 7-so — Fee: \$1,995-Contact: The Learning Tree International, anc., Reston, Va. (800) 843-8733-

Software Engineering for Project Manag-ers, Philadelphia, May 9-so — Fee: \$650 to \$750. Contact: Project Management institute, Upper Darby, Pa. (600) 734-3330.

How to Manago, Motivate and Coach Sup-port Professionals. Dellas, May 13-14 — Fee: \$595 to \$695. Contact: Help Desk Institute, Colorado Springs, Colo. (800) 248-

ortifiew: joining the Islands of Automo-m. Boston, May 13-14 — Fee: \$1,095 to \$1,295. Contact: Delphi Consulting Group.

Boston, Mass. (617) 247-1025

Communication and Interperson A Seminar for Technical Profi \$1,375. Contact: American Manag

ciation, New York, N.Y. (800) 262 Re-engineering the Computer Help Desk, Phoenix, May sa-ss; San Francisco, May 16-17 - Fee: \$895. Contact: Date Tech institute, Cithon, N.J. (201) 478

pplication Development Facili thodology Using Object-On ering Sominar. Gree Software Engineering Sominar. Green-wich, Conn., May 14-16 - Fee: \$1.475.

Contact: Pierson Applications Dev ment, Inc., Stamford, Conn. (203) 322 entifying and Confirming User Require-ents. Los Angeles, May 14-17 — For those responsible for identifying user needs in a project. Fee: \$1,995. Contact: The Learning Tree international, Inc., Res-

ton, Va. (800) 843-8733-

Hying and Managing Software Rets. Santa Clara, Calif., and Washington, May 14-17 - For project menag ers developing requirements specifica-tions. Fee: \$1,995. Contact: The Learning Tree International, inc., Reston, Va. (Boo)

formation Systems Project Manage-ent. Minneapolis and Princeton, NJ. W15-17: San Antonio, May 20-22; New port Beach, Call., May 23-24 - Fee: \$1,295 to \$1,490. Contact: American Mensent Association, New York, N.Y. (Rm) 262-9699

trategic IS Planning. Los Angeles, Ma 15-17 - For senior managers, Fee: \$1,350 to \$1,550. Contact: American Management Association, New York, N.Y. (8) 262-0600

Consulting Skills for IS Professionals. De-troit, May 16 — Fee: \$345. Contact: Karten ciates, Randolph, Mass. (617) 986-

estanding Client/Server Compu

Planning, Designing and Implement-ing a Client/Server System. Someriet, N.J., May 36-17 — Fee: \$895. Contact: Data Tech Institute, Clifton, N.J. (201) 478 Chicago, May 13-15 - Fee: \$1,195 to

Quality Review Techniques for Informa-tion Technology Professionals. New York. w 20-21 - Fee: \$1,395 to \$1,375. Cohtact-American Management Association New York, N.Y. (800) 262-0699

Measuring and Controlling Software Projects. Chicago, May 30-22 — Fee: \$845 to \$945. Contact: Quality Assurance Institute, Orlando, Fla. (407) 363-1111.

ionals. Los Angeles, May 21-24 - Fee: \$1,995. Contact: The Learning Tree International, Inc., Reston, Va. (800)

Implementing Major Change: The Human Dimension of Re-engineering. Waitham, Mass., May 22-23 — Fee: \$1,500. Contact: Hammer and Co., Cambridge, Mass. (617) 354-5555, ext. 106

ing Your Internal Consulting Skill For IS Professionals. Chicago, May 22-24 - Fee: \$1,295 to \$1,490. Contact: Ameri N.Y. (800) 252-0600

Managing Telecommunications: Technol-ugies Your Company Can't Do Without New York, May 23-24 - Fee: \$1,250 to \$1,4%. Contact: American Management Association, New York, N.Y. (800) 262-

Calendar announcements should be submitted at least eight weeks prior to the event and include the title of the event, dates, location, theme or focus, keynote or major speakers. cipal topics and a contact perso nization and phone number

A new generation of client/server development packages promises to help corporations build applications that reach beyond the workgroup. Vendors hope to address user demands for transaction processing, integration of legacy applications

and heterogeneous networks.

By Alan Radding

enterprise eged as a mecca for vendors of client/server development tools. ing that client/

out to be rolled out in re-scale applications. rs have slapped the enterprise label on almost any tool in hopes of tapping in to the high-end tool market. That market is projected to hit S3 billion by 2000, according to Horwitz Consulting Group, Inc. in

Newton, Mass. Tool vendors are also rushing to add 32-bit support so their tools will work with Microsoft Corp.'s Windows NT and Wandows S6. "We're going through a redefinition period right now," says Dick Heiman, a senior analyst for application development tools at International Data Carp. (IDC) in Framingham, Mass.

Outdated definitions The traditional classifications ideatify a tool as workgroup/depart mental or enterprise. But these labels no longer serve as a useful ide because development projects fall along the spectrum between

workgroup and enterprise. Even the term "enterprise" has taken on new meaning. Enterprise used to mean mainframe, says Brent Williams, research director of application development technologies at Gartner Group, Inc. in Stamford, Conn. The tools are often associated with mainframe comp ter-aided software engineering (CASE). They have used extensive formal methodologies and have provided full lifecycle application development from analysis and design to code

production and deployment. Today, enterprise means largescale projects, with or without a mainframe. The new enterprise tools often have analysis and design fea-

team management facilities and code partitioning for scalable deplayment, says David Kelly, director of application development service at Hurwitz Consulting.

Other characteristics include support for mission-critical, transactionoriented production applications through features such as two-phase commit, integration with transaction monitors and tools for team and sys-

Workgroup/departmental applications, on the other end of the scale, refer to small applications that support one, a few or up to several dozen users. You might push these tools further depending to the de-

veloper's skills, Williams says. The tools, which primarily are SQL-centric, are used to create graphical database applications that avves backend relational data bases. They build fat client applica tions, where the application logic is buried under graphical user interface (GUI) components. They swap fast, iterative prototyping for exten-

sive op-froot analysis and design. Chent/server development is moving past smaller workgroup apolications, but not every organization is ready to embark on largescale, mission-critical client/server production. To be useful, a client/ server tool taxonomy needs to provide more options. Traditional work-

eroun/departmental and enterprise classifications are still valid, but IDC has added a Division group that is beyond workgroup/departmental but isn't quite enterprise. A miscellaneous category covers special cases. The summary on pages 90, 91 and

92. compiled from interviews with consultants at IDC, Hurwitz Consulting and Gartner Group, considers how some tools fit within such a taxonomy and describes the high points and key features of each tool. Radding is a freelance seiter in Newton,









Enterprise

Seer HPS Cary, N.C. (800) 499-7337

http://www.seer.com With its roots in the mainframe world Seer HPS (High Productivity Syst offers the full life cycle of client/ server application development, in cluding analysis, design, deployment,

An object-oriented fourth-generati

an operformed source persons of the language (4GL) pioneer, Dynasty 20 includes four partitioning schemes. Tuxedo-compatible code generation (for use with Novel, Inc.'s Tuxedo

transaction monitor), support for two-

phase commit (a technique for ensur

testing and configuration. The tool isn't expressly object-oriented, but it lets developers work with modular pieces of code that have some objectoriented characteristics, such as in-It includes a repository (a central place to store objects) and messaging

middleware (which helps objects communicate among themselves).

ing the integrity of distributed transac Dynasty 2.0 Dynasty Techno tions) and asynchronous messaging.

Dynasty 2.0 also has expanded its (708) 769-8500

It lets developers build large-scale applications by using high-level, reus-able business objects and rules. An automatic code generator cranks out partitioned C code, SQL statements and remote procedure calls to create a

Server Development Tools

for the enterprise

Client/server development terms

development. Forte 2.0 in-



e user interface, business logic



Workgroup/ Departmental

Re-tooling for the enterprise

CONTINUED FROM PAGE 91

ogy. SQLWindows is an effective departmental rapid application development (RAD) tool loaded with case-of-use featores. Centura, the 32-bit version, bus support for partitioning, which gives it im-

Delphi 2.0 Borland Internatio Scotts Valley, Calif. (800) 331-6877

reland raises the ante for Visual Basic a data dictionary.

with Delphi 2.0. Both tools compete in the low-end graphical database access application market. Delphi's trump card has been its better use of object technology and its walshie database architecture based on Interbase Software Corp.'s relational dataase management system engine.

Delphi is stretching into enterprise space by adding an object repository, an open upplication programming interface (APD) to allow integration with third-purty design tools, a library of reusable components and



Progress 8.0 Word, Mass (617) 280-4000 (800) 477-6473

etp://www.progress.com rogress Software Corp. is known primarily as a rintional database wender. Its Progress 8.0 prorides developers with an extended version of the vany's 4GL

Progress 8.0 features SmartObjects, a graph opent structure and a mechanism for buildand linking those objects. Progress 8.0 also includes eight prebuilt.

share-uware SmartObjects, which encapsulate ces logic such as queries.

Support for 32-bit code and partitioning at ised for the future.

PowerBuilder 4.0 rooft Corp

Concord, Mass (800) 395-3525 http://www.powersoft.com PowerBuilder defined the client/ server RAD market. This version lets developers build solid workgroup/departmental database accros annications. It supports a measure of partitioning and limited object capabilities, which lays the foundation for more comprehobject support in the future. Its inte-gration with S Designor gives the tool design and analysis abilities.



let 5.0, which is dur this year. tentures new levels of OLE control inteUniface 6.0 Compuware Corp. Farmington Hills, Mich. (800) 365-3608

Uniface 6.0 is a powerful devel ment covironment. The produ makes extensive use of modeling to separate interface, business logic and database con

which forms the basis of parti it offers rehest database ac cres through a set of native data-

base drivers Uniface 6.0 also lets developers build industrial-strength transac tion processing applications ing monitors.

tha:

rough support for several transaction process-

......

Visual Basic 4.0 0) 426-9400

The quintessential workgroup tool, even Visual Basic aspires to enterprise status. It builds graphical, large-scale, database access applica-tions. Visual Basic Enterprise Edition 4.0 features Data Access Objects, Microsoft's Jet 3.0 database engine, remote automation, Object Database Connectivity (ODBC), ODBC API and remote data objects that expand the tool's database access capabilities.

The additions were intended to address

complaints that the tool wasn't sufficiently



that helps users access remate OLE servers

database-aware. It's highly debatable whether the improvements elevate the tool to enterprise class.

Vision 2.1 Unify Corp. San Jose, Calif. (800) 248-6439 http://www.unify.co This tool, known for its Unity

2000 database and command line 4GL, is graphical. It provides automated partitioning, team management and an object repor itory. An open messaging API and global and local natning ser vices allow the application to effi ciently use components that are distributed across the network.

Vision 2.1 features built-in functionality

that eliminates a lot of code writing for de-

Magic 6.0 Magic Software Enterprises, Inc. Irvine, Calif. 800) 345-6244

http://www.magic/ww.com Magic 6.0 is a highly efficient rapid application development tool for building complex, portable client/ server application Marie 6.0 was based on a unique

approach to software development in which the underlying code is highly abstract.

The code is represented as en-

tries in a database table. The resulting application is a database file in which the definitions, specifications and values of the application - including the layout of the screen to business rules - are stored as data in tables. At runtime, the Magic 6.0 engine steps through the file to exe-

Elements Environment 20 Neuron Data, Inc. Mountain View, Calif. (415) 528-3450

http://www.neurondata.com Neuron Data's Elements Environ ment 2.0 falls in the special cases egory because it has componests from four areas: GUI develment, data access, bus rules and interprocess communica-

The components are linked by a set of integration facilities, which includes visual editors, an extensi-

ble script language, C and C++ interfaces and low-level, portable apnlication services.

The environment is delivered in a set of four tool products. Neuron Data employs a me ing facility that operates the san

way as an object request broker, which lets developers create scal-able, distributed, multitier partitioned client/server applications. Elements Environment 2.0 pro

vides a complete object-oriented environment and generates comniled C++ code

COMPUTERWORLD MARCH 25, 1996 (http://www

cute the application

The benefit of this approach is

ast users can develop fast, code-

free applications that can be ported

easily to any platform for a Magic



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Core functions of high-end tools

By David Kelly

rorise client/server molication development tooks come with a bewldering array of capabilities and functions. Understanding what each one does, let alone comparing them, can be an arduous task made more difficult by confusing marketing

ate tooks by ng a clear understanding of their mpany's business and technical objects. From this understanding. craft a list of minimum technical specifications. Use this list to identify enterprise application development took that provide the needed functionality. To make your purchase easier, consid er the following high-level capabilities:

 Analysis and design capabilities.
The task of embedding business rules in a large-scale application can demand a level of functionality that is difficult to achieve with a simple, graphi cal, ad hoc prototyping approach. Enterprise-level tools should include a built-in analysis and design compo-nent or interfaces to third-party tools. Wishout touse form of analysis and design functionality, enterprise development efforts most likely will spin out of control or create poorly understood business-critical applications that will prove unmanageable and difficult to modify as a business grows and changes. Analysis and design tools become an important way for developers to share application designs quickly. This is a key consideration as the scale of a project and its financial risk

Questions to ask: Does the tool require or support a specific methodology?

Does it support third-party, objectoriented and non-object-oriented analysis and design tools?

If so, are the interfaces bidirectional? (That is, are changes made in the development environment reflected in the analysis or design environment?)

· Repository. A repository is centralured storage for application designs. business rules and programs. A repository is essential to control a largescale or complex project. A fullfeatured repository should include tools that let developers graphicall

tion components. To facilitate team development, a repository should include version control and configuration management capabilities. This lets managers implement controlled builds of applications and review developers' work to identify training needs and productivity patterns.

Questions to ask: Can outside objects (C++ code, OLE controls) be stored and used in the

retoriors) Is the repository proprietary or can standard relational database manage ment restent be used?

How well does the tool subbort thirdparty version control systems?

Database integration. Data is the linchpin of almost every business apolication. The way a development environment interacts with database moment systems is key in deter-



are enurial

formance and functionality. A high-end development tool should automatically generate most of the data handling logic needed to specify and control transactions. It should also let de-

velopers modify or add their own highly tuned, data-handling logic. Some tools automatically generate database tables and structures. This lets developers focus on creating applications rather than

becoming experts on relational datahase theory. Questions to ask: Can you modify or override generates

SOL Can the tool automatically generate

SQL? Does the tool require you to write SQL? system operations personnel need explicit tools and explicit logic within ap-

and integrity of applications, gather shoot runtime probles

Systems management staff must be ble to coordinate with developers to able to coordi manage application upgrades or modi-fications — from finalizing the config tion of runtime executables for deployment scenarios to automating the distribution of software across a net work to target PCs. The developmen egvironments should support devel oper efforts to create manage books and developers' error-handle

and performance collection. estions to ask: Can the tool generate Simple Mail Transfer Protocol events or traps?

What events and parameters can the tool monitor?

> What release and distribe misms does the tool provide?

 Application management facili-ties. In a distributed environment, Kelly is director of the appl ment service at Hurwitz Consu

There are other client/server tools that you may

want to consider. Most are enterprise-oriented, but a few are departmental

Blyth Software, Inc. Freder City Calif. (800) 346-6647 http://www.blyth.com

NatStar Nat Systems International, Inc. McLean, Va. (703) 620-9200 http://www.natsvs.com

Four Sessons Software, Inc. Edison, N.J. (900) 949-0110 http://main.street.net/4s

Symon Corp. Larkspur, Calif. (800) 947-9666

http://www.sypon.com

(214) 447-5500 (900) 416-2888 Visix Software, Inc.

Reston, Va. (800) 832-8668 http://www.visix.com Enterprise Develope

Symantec Corp. Cupertino, Calif. 0800h 441-7234 http://www.symantec.com

Jam 7 JYACC, Inc. New York (900) 458-3313 http://www.gracc.com (800) 562-5969

CA-OpenROAD Computer Associational, In Islandis, N.Y.

(800) 225-5224 ttp://www.cai.com

Visual SmallTalk Enterprise ParkPlace-Digitalk, Inc. Summyvale, Calif. (800) 759-7272

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Delphi delivers the goods

Visual Basic 4.0 neoft Corp nd. W

QLWindows 5.0 mio Park, Calif. 1) 8763287

By Keyin Borden

ed to ship.

he new kid on the block is wing an impact. Borland Internat Inc.'s Delphi has been in the client/server develop ment tool market for only s year. But Delphi has satisfied its users more than competitors have because it is the first tool to include features that developers need to build faster stand-alone appli-

cations - ones that don't require runtime modules such as a code compiler. Satisfaction ratings for other ckages - including Microsoft Corp.'s Visual Basic 4.0, Powersoft Corp.'s PowerBuilder 4.0 and Gupta Corp.'s SQLWindows 5.0 - are noticeably lower than Delphi's, but still positive. All four vendors are replacing their products with new versions; for example, Delphi 2.0 recently start

Computerworld contracted First Market Research Corp. in Austin. Texas, to survey at least 40 users of each client/server product. The goal was to find out what factors led users to choose a client/server product and how well the package has performed.

Belphi Client/Server Suite Client/server development tools have red in the past several years. which is why it's been rare for one to receive an "A" for overall satisfaction from half its users. But Delphi Client/Server edition came very close this year

Borland has pioneered a RAD paradigm with Delphi that runs faster and produces applications that perform etter and don't require a runtime module. Delphi's approach combines a visual design environment with an object-oriented language. But the key that will further unleash its performance is a true native-code com that Borland has added to Delphi 2.0. It will compile its Pascal source code directly into machine code. When we asked users what led

Top 5 reasons.

We develop application suites, so performance is very important to us," says Jeff Carlson, manager of systems research and development at Quintiles, Inc. in Research Triangle Park, N.C. "And what we've built with Delphi runs faster than any application we built with other tools."

much, to the relief of some users Most of what is different are the new Windows 95 controls, such as the right-click of the mouse

A consistent interface also has contributed to the atmosphere of develop er friendliness. Users of all four prod ucts ranked "ease of use by developers" as their first or second most critical reason for their product

Basic's or Delphi's. "It's like everything is passing it," Corbin says.

The good news is PowerBuilder 5.0 is on the way. It is acheduled for release in the second quarter

Version 5.0 will include Watcom International Corp.'s C compiler engine which turns PowerBuilder applica tions into machine-code executable es. Watcom is a sister com ase-owned Powersoft. Version 5.0 also will support three-tier architec tures and OLE controls, which makes

Very Good build you choose the same product again?

81%

Visnal Basic 4.0 Visual Basic 4.0 applications have the same lethicaic performance that

users of previous versions have com plained about, but Release 4.0 reprewrite enough of an improvement own Release 3.0 that 86% of the users surveved gave the product favorable grades for overall satisfaction

The consensus showed that users are happy about how Microsoft has changed Visual Basic to meet market needs. Some of the tool's most notable ments include 32-bit support. a shift from Visual Basic controls to OLE controls and the introduction of Remote Data Objects and Remote Data Control - data access objects nationised for Oracle Corp. and SQL

wasn't changed

Server databases.

The interface

choice. But Visual Basic had the m users (17) who ranked it first, and all gave the product an "A" or "B."

5%

werBuilder 4.0

Overall satisfaction scores show that Powersolf's PowerBuilder 4.0 could be past its prime. Version 4.0 has been on the market since 1994, which means it lacks hot technologies such as custom controls or compiled code 'it needs to improve with new fee tures," says Gregory Corbin, a senisystems analyst at Glazo Welcome, Inc. in Research Triangle Park. In past Buyer's Scorecards, Power-

Builder placed first or second in the satisfaction ratings. Its scores tend to closely match Visual Basic's. Its current scores are still mostly posit but aren't in the same class as Visa

it more similar to Delphi. SQLWindows 5.0

For the second straight year, Gupta Corp. (now known as Centura Soft-ware Corp.) finished last in user satison ratings with its SQLWindows. But until the release of Delph Visual Basic 4.0 and soon PowerBuild er 5.0. SQLWindows 5.0 arguably was the more powerful devel

sent of the bunch. Part of its prob less is "it's never been intuitive enough that I would say it's easy to use," says Tori Rosenthal, a business administrator at Micro Motion, Inc. in Boulder, Colo.

Gupta also had the fewest users who said they would buy the same product again. But more than just functionality is influencing that deci sion, users say. Their financial stability is a real concern for us," says Marshall Miller, a systems progra Grant County Public Utility District in Ephrata, Wash. Gupta hasn't posted a ofitable quarter since the fourth

quarter of 1993. Gupta also is concentrating on Ceotura, a 32-bit enterprise client/server development package that it will release this month. Gupta named the 32bit tool after itself to indicate its com-

mitment to the next generation of annification develop Gupta says it will still support the 16-bit SQLWindows 5.0, but several users interviewed said they would ther use the product that gets most of the vendor's attention.

Interface Manager

them to their development package. only Delphi users listed "speed of developed applications" among their COMPUTERWORLD MARCH 25, 1996 (http://www We pushed the envelope, ripped through it, wadded it up,



and kicked it into the **corner**

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Java needs time to mature

By Kevin Burden



tems, Inc.'s object-based development language that lets developers build applications that can be circulated over the internet and run anywhere in a highly distributed network.

Java applications are platform independent, but differences between Java and Netscape Communications Corp.'s Netscape browser prevent ap-plications from looking the same

across all piatforms. "Run our Wall Street [World Wide Web| page on a Windows 95 box [with Netscape), and it will look different than it does oo a Sun Solaris system, says Scott Milener, CEO of Bullet-Proof Corp. in Los Gatos, Calif. The problem, according to users such as Milener, is rooted in Netscape's inter-

pretation of the Java language. And Java development tool kits are very primitive, users say. But for those who consider the tools completely useless, building their own tools is an it takes to use Java," Milener says.

Four Java developers were asked to rate their satisfaction with the lan-

guage in several areas. The developers' firms include BulletProof, Strategic Technology Resources, Century Computing, Inc. and Mitsubishi Electric Corp.

Fase of use



Learning Java is easiest for C++ promers, since Java essentially is Cas without some of the hazardous ctions that get developers in troo-

ble - pointers, for example. Experience with C++ syntax helps developers, but knowing the fundaentals of object-oriented program mine is a definite prerequisite, according to Larry Podmolik, director of technology at Strategic Technology Resources in Chicago, 'Learning syntwo is one thing: grassing entire con-

cepts is quite another," he says. The biggest obstacle for everyone who wants to learn Java is the industry's lack of experience with it. Milener cars his learning curve was quite steep for the first few months. There were no training classes or experts with whom to consult. We just

learned by trial," he says Igea is easier to learn than C++ because Sun included only those functions that are absolutely occessary. "C++ has every function you could want, but you have to learn them all. too," Podmolik says. But there are

some functions that developers sorely miss in Java, including templates. With templates in C++, developers can create families of related class files by writing the class only once. In Java. each class file has to be written indi-

Besides being functionally lighter, jurn is easier to use because of its modular building style, which makes team development more mi and application changes less dang out. "Bugs only affect the mod they are in, so it's impossible to screw up the rest of the program by mak changes or adding functionalty," Mil

Development Tools

POPT SENS



The Java Development KR from Sun was adequate for two of the users, but the other two said they needed to build their own tools "Its debugger is horrible," Milener says. He says he developed his own

tool set after testing some stock sets. Same with Borland [International. loc'al laws tool kit - it's downright unprofessional," be says. "It looks like they rushed it out the door." None of the users had tested Symantec Corp.'s tool kit Fancress.

Everyone agreed the compiler included in the Java Development Kit worked well. "It's more stable than

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Conferences, etc.

most production C++ compilers we've used," said Steve Clark, software engineer at Century Computing in Laurel Md. Java code is compiled for efficien cy, and it's done so that it won't be specific to any system. Java applicati

remain platform-independent is this way. Podmolik says he misses having a drag-and-drop tool for buildi symbical interfaces when using Java vs. more mature environments. Jax screens are designed by writing code But third-party tools such as JFacto ry from Rogue Wave Software, Inc. in Corvallis, Ore., are expected to help.

Application Performance



The four developers said they are sat issed with the performance of their Java applications but that there is still

room for improve "Performance is fine for interactive GUI applications, but Java isn't good enough for high-volume servers right now," Podmolik says. it won't be reas until a just-in-time compiler is re-

leased, he says.

The download time for lava ap eeds a lot of attention, users say. The time it takes to download a Java application depends on a network's band width, "but no attention has been give en to compressing the inform before it comes over the wire.

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In Depth

Is OOP right for enterprise IS?



By John A. Strand III

YES!

s — It's professio. As a

you ever used Lincoln Logs, Legos or Tinker Toys when you were a child, you understand object orients tion. Using Lincoln Logs, you could build a cabin, dis mantie it and reuse the components to build a fort. Pre-fabricated parts were the heart of the industrial Age: prefabricated objects, components and software-integrated circuits are the heart of the information Age. Without them, software development can't move forward as a healthy, thriving en tity. It's amazing that these simple concepts can't be grasped, because they are intuitively obvious.

At Sprint Corp., not only are we using OOP to build new enterprisewide applications, but we're also distributing and shar ing objects enterprisewide via object request brokers — such as San Diego-based Expersoft Corp.'s PowerBroker — to dispel our legacy eightmare with a distributed, beterogeneous infor mation infrastructure. This gives us the ultimate vendor lever age — because we have no proprietary dependencies — as well

as object interoperability with our partner enterprises.

Objects have many ramifications for information system throughout the enterprise. Several facets of OOP require a fun-Yes, page 102

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The's right?



By Martin A. Goetz

ABSOLUTELY NOT

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HAT are some of the characteristics of "cla OOP? The OOP implementation is in an OOP-language such as C++ or Smalltalk. An object's logic and variables are encapsulated together. The OOP implement rchical model for defining object classes and dependencies. yess logic is put into individual methods in a class hierar chy. The objects inherit functionality higher in the hierarchy. This isn't the profile of a paradigm that will succeed.

Don't get me wrong. I'm all in favor of finding new and pr factive ways to build IS applications. Heaven knows we need them. But OOP isn't the answer. For every OOP success story you've read, there are 50 failures that have been shoved under the computer room floor. For every IS Cobol professional who has successfully adapted to OOP, there are 50 others who, after oths of training and trying, still don't understand how to apply OOP theory successfully.

Just last month, Computerse rid ran a story on Page 1 that de-Absolutely not, page 102

etz is president of Goetz Associates in Tenneck, N.J. As founder past president of Applied Data Research, Inc., he has been an ad

Strand is director of technology planning and integration at Sprint Corp. in Overland Park, Kan

YES!

CONTRACTOR SPOM PACE 101

mental change in the way large comproach software. It's important to understand these aspects of OOP and how they mandate both cultural change and a difficult but achievable puradiem shift throughout the enterprise

Encapsulation is a key aspect of OOP that brings all information pertaining to a particular real-world object, such as a customer, into a single "digital master" object. This master object resides in a virtual object warehouse that is accessible by applications throughout the enterprise. This enconsulation represents an enormous cost savings and increase in efficiency on mais alone, not to mention improved accuracy and better customer service.

By contrast, a legacy system may keep some information about a customer is one database and other information about the same customer in an-

other database Additionally, the same information about a givmer is typically in more than one database, but each may contain mistakes. To make matters worse, the databases are sometimes proprietary or homogrown, difficult to integrate and

require large maintenance staffs Encapsulation also prevents brittle "rat's nest" code by reducing assumptions, thus supporting cations. New tools are availrapid changes to appli able, such as one from Apertus Technologies, loc. in Eden Prairie, Minn., that we're using to perform sutomated mappings from flat or relational nes to objects. These tools provide ways to achieve legacy database migration sooner rather

One of the most often noted advantages of OOP

is software reuse. It's a benefit of buge prope tions because it slashes development time and therefore, costs. Where software development managers sometimes go wrong is in selling reus as a silver builet. These managers often are unwilling to schedule the extra time required to create mushle code

True object-oriented languages such as Smalltalk and Java support reuse by means of inheritance. If you've already written the code for a overal class of "ball" objects, you don't have to rewrite that code for subclasses such as "baseball" or "eolf hall." You write only the code that's different for each subclass -"has seame," for instance, or "has dimples." Due to inheritance, reuse appears as a by-product during normal development in OOP

When IS is chartered with building a new system, typically there's deep reluctance to decipher some one else's cryptic legacy code. In stead, programmers write new code or pile another layer on top of the old

stuff, compounding the problem. Contrast this with object-oriented size of their staffs, and programmers. The really good ones are part plagiarist, part artist, part systems integrator. They take objects from anywhere, reuse them, modify them if necessary and

integrate them at blinding speeds But to take full advantage of their work, a cortion needs an "object case" who coordinates their are using objects to consistently maneuver inside efforts So why has OOP failed to gain more wide spread acceptance? One reason is that it presents a serious threat to traditional IS organizations.

OOP's main detractors are typically those who thinking about the design and programming of ac

OOP is - or should be - only a means to the end of building better enterprise IS applical But it fails to deliver as a true advancement. Look at the evolution that took place in the past four de

codes: machine code. assembly language, Cobol, fourth-generation languages (4GL). Each step represented a true advance in the technology Each successor language who easier to learn and use In this context, it's easy

MIL to see that OOP is neither the next step nor "for even 60° success Cobol. like machine stary yea've mad, code and assembly language before it

there are 50 failures should be retired with dignity. To replace it. shored unior the Cobol programmers need objects that are competer near floor." eney to use and flexible enough to meet IS en-

terprise application requirements So what's the solution? It's right in front of un: enterprise 4GLs, which already are delivering the productivity gains so desperately needed. Enterprise 4GLs are easy to use and learn; use only object technology that is compatible with the build ing of large, complex IS applications; and have

stand to lose the most: the control-centric em builders who are evaluated on the size of their

staffs, not on their savings to the enterprise Another reason is the difficulty or lack of commitment that some organizations encounter when trying to make the paradigm shift to objects. It's

just this paradigm shift that OOP ers raise as a cause for avoid ing OOP Don't listen! This fundamental change is needed to produce significant change, and it takes time When the promises of OOP aren't realized right away, managers blame the technology, cancel all further mes and abort halfway through

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these who stand to less the most

custral-custric essaint niles exhatel or the on their savings to the

guages such as Smalltalk, C++ and The reason for this mos that software objects mirror the real world. Records, fields and structures are computer-oriented; objects are ople-oriented. After you understand objects in software the way

the paradism shift. Then the IS old-

timers rejoice, for their jobs and em-

pires are secure once again, and the

perceived pain of learning some

be object-oriented. The trend is obvi-

ous, with the growth of OOP lan

In the near future, all software will

ng new goes away.

you played with objects as a child, OOP becomes obvious. Do you want to be on the trailing edge of this paradigm shift while your competitors

your development cycle? We constantly hear the

estion, "Are objects ready for prima time?" Hell, they've been ready for years. The question is, when will IS departments be ready to embrace

ecial facilities for building and maintaining t buted client/server enterprise applications. Choosing an enterprise 4GL over a classic OOP figm can, therefore, represent a critical deci sion for success. Unlike Duke Power, Fairfax, Va. based Mobil Oil Corp. rejected classic OOP as a

basis for building a large application. Instead, it opted to build this new client/server application using Ronkonkoma, N.Y.-based Passport Corp.'s Passport, an enterprise 4GL that marries object and relational database technologies. The decision paid off. Passport was easily learned and quickly employed by existing Cobol staff. The application is operationally efficient and easily modi-

fied to meet changing business needs. The three basic reasons classic OOP will fail are the followin

• The prerequisite training, which requires a new mind-set, is too extensive and complicated. . Classic OOP theory is fatally flawed for applica tions that use relational database technology.

• OOP imguages and methodology can't according

modute the ever-changing requirements of busi-Classic OOP isn't the wave of the future for en-

terprise IS. Let's focus our attention instead on improving productivity and making each advance one that makes life easier - not more com ed. Enterprise 4GLs are a much safer bet with a much higher payback.

Attack, Sustain, Decay, Release

ARSOLLITELY NOT

CONTENUED FROM PAGE 101

serviced Darke Planer Co.'s failure to apply OOP effectively [CW, Feb. 26]. The Charlotte, N. C.-based utility abandoned its new customer information system and lost a substantial investment in the project. In the article, Oracle Consulting's Steve Perkins, who oversuw the project, acknowledged, 'The object-oriented methods and tools proved not to be scalable to a problem of this size and complexity." The story went on to say, "One of the biggest problems is mapping software objects to relational database management systems." Duke Power's experience is far from isolated.

ford, Cong.-based Gartner Group, Inc. identi fied OOP's shortcomings in a 1995 report. "Object orientation is a notoriously difficult technique to masser," it read, "and beyond GUI management, it is onsuitable for large, complex systems involving scores or hundreds of relational tables and for large development groups.

est what is the problem OOP is trying to solve? For the past 40 years, the goal in IS has been to build and maintain viable enterprise applications that increase productivity, reduce maintenance costs and quickly respond to changing business needs. We've worked hard to accomplish this and gained a lot of experience along the way. But classic OOP throws this out the window. As even diebard OOP proponents acknowledge, OOP requires a new mind-set and a unique way of

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Computer Careers



Leaders of the Pack

The right packaged software skills can put you at the forefront of the client/server scramble

BY LESLIE GOFF

o "real progras use Visual Basic? You bet! Experience with offthe shelf, or packaged, client/server software ue to differentiate IS professionals for at least the next three to five years, managers and recruit-

ers predict. Companies as diverse as Raxter Healthcare Corp., J. B. Hunt Transport, Inc., Marine Optical, Inc. and Steelcase, Inc. are hiring full-time information systems staff and contractors for core systems development projects. These companies are looking for candidates who understand general client/server concepts and connectivity issues. And they are also screening resumes for key pack-

aged software skills. "The more strategic development tion grabbers on a resume. But the is happening in client/server — well-publicized demand for experthat's where all the new investment time in integrated enterprisewide cliis," says Steve Van Kusken, director ent/server packages, such as SAP

SAP project director to the information technology division of Bexter Healthcare in Deerfield, III. Van Kuiken says his own career has been speled by his work on client/server

development projects. "I think a lot of hardcore developers view packaged installations as a bad thing because they think you don't get a chance to do real de velopment work." Van Kuiken says. "But no one package fills all of a company's oeeds, so you always need some custom development. There are still opportunities to build your development skills in packaged installation

projects, so it's good to have those packages on your re-Front-end development tools such as Microsoft Corp.'s Visual Basic
and Visual C++, Borland Internationlag skilled client/server professional, Inc.'s Delphi and Powersoft Corp.'s PowerBuilder are still atten-



is managers report the following demand for packaged chent/server skills NO LEVE DEVELOPMENT TOOLS OPERATING SYSTEMS ST (high diniche mari · Gupta SQL Wi or (high demand/

demandinishe or t mainstream markett COOL How demand mainstenem marketi

COLD (low demand) niché market)

of new product development and AG's R/3, Oracle Corp.'s Oracle Flnancials and People-Soft, Inc.'s financials family is stealing much

of the thunder. And database' developers experienced in products from Oracle, Sybase. Inc. and Informix Software, Inc. also remain in high demand, as do those with skills in Computer Associates Infernational, Inc.'s

CA-ingres and related products such as Microsoft's SQL Server. . Other hiring factors include a company's ongoing projects, the competition for talent and the ability to draw

met-related is — they're all

cardidates to some times remote, lesser known areas of the Lowell Ark-based trucking company J. B. Hunt, for ex-ample, is nestled in the Ozarks in the state's continuest region. The com-

als, despite its advanced technology

MIS manager Arme Marie Fallon says Marine Optical is under pressure to find staff for global electronic data interchange applications, Inter-net projects and other customeroriented systems development.

corporate neighbors such as Tyson Foods and Wal-Mart Stores, Inc. As the company seeks to increase its 140-member IS staff by 15% this year to accommodate critical transports tion logistics projects. IS managers say they will look for transferable

HOT AND COLD SOFTWARE SKILLS

skills more than specific experience. Kay Palmer, vice president of applications, and Tracy Black, director of applications development, say they will require a minimum of two years' experience in IS, including at least one project that involves relational database programming and connectivity. Anything else will be

nice to have, they say, At cycglasses distributor Marine Optical in South Easton, Mass., the need is for a few good Microsoft Access professionals. Responsibilities will involve writing end-user applications that pull data from back-end databases, which are developed in Progress, a SQL-based fourth-orner-

"We're seeing more development demand." Fallon says. "Many of our retail customers, like Pearle Vision

cated retail systems in place, and they expect a lot from their vendors So as we briggt in most creatil custom ers asking for more technological based services, we have to be able to

Office furniture maker Steelcase in Grand Rapids, Mich., and Baxter althcare are both in the throes of R/3 implementations. J. B. Hunt will choose a client/server-based financial package this year. But even at these companies, IS managers say they're looking for a certain attitude

"Participation on specific project ian't nearly as important as attitude. says Diane Schwartz, manager of 5oancial systems at Marine Optical. "The open-minded, flexible analyst moves a lot further in this environ ment than their less open-minded

Possessing such skills also provides greater opportunities for selfemployment, says Kathy Brittan White, CIO at Baster Bealthcare.

These skills allow you to be very entrepreneurial. You can work for consulting firms, outsourcers, Internet-related start-ups - they're. all hiring client/server peoples" Brimss

"They may not be Fortune 100 companies, but there's a lot of conce tunity outside that scope." Goff is a freelance writer in New York

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Mapping Out Career Paths for PROGRAMMERS

His own fast-paced career gives author Gene Wang insights for others

BY ALAN R. EARLS

F you want to figure out how to bett age your career, land on your feet when your company downsizes or ride the next big trend, there aren't many resources out there

According to Gene Wang, a former executive vice president of applications and development tools at Symantec Corp., there haven't been any books targeted at the career-planning needs of computer professionals. About the only choice has been the one-size-fits-all What Color is Your Parachate?, now in its gazillionth printing

With that information gap in mind, Wang set out to develop a resource for at least one segment of the industry. The result: The Programmer's Job Handbook: The Shills You Need for Long-Term Job Security and Programming Success (Osborne)

McGraw-Hill, 1996) Wang says he has

tested a lot of the book's career advice himself and had positive results. "I had a lifelong ambition to be a CEO by age 40," says Wang, 38. Recently, he ame president and CEO of Computer Mo tion Inc.

Wang says the experiences he accumulated from his start in the field — as a programmer at Wang Laborato ries, Inc. (no relation)

- provided grist for writing the book "I saw their demise

from the inside," Wang says. "I started out work ing on a whole operating system by myself, but by the time I left, I had a whole department, and we worked on practically nothing." Wang then was involved in an artificial intelli-

greace start-up called Gold Hill. Inc. in Cambrid Mass, which went "from zero to \$5 million" in a brief period of time before "hitting the wall." "I had learned that it was important to us

stand the big picture, so I got out of Gold Hill before the end," Wang says.

After a productive career move to Borland International, Inc., where he led the development of C++, Wang moved to Symantec to work for Gordon Eobanks, "the best boss I ever had," be says. Unfortunately, the move led to a lawsuit by Burland, which claimed be had taken trade seen "It was a very messy thing, but I learned to be more careful when exiting a company," Wang says.
Capsulizing those lessons and many others in a manuscript took Wang about nine months. "The publisher approached me and asked me to write he book, and I agreed to do so because I want-

ed to help programmers find better careers," he

In the book, my first point is fairly obvious, but very few people do it Have a plan for your profes-sional development." Wang says. "It is like New fear's resolutions but focused just on your job."

lang also identifies the seven most crucial skills for successful programmers. "Some are so obvious they are almost in sulting — like not put-ting bugs in your programs. I learned that from my manager at Borland, and it really is true. The ers that rise to the top are very polical and make sure they don't have bugs in eir code," Wang explains.

Wang says it's also important to develop skills in with areas and to embrace change when it es along. "I know lots of great people who are sled maintaining some sort of mainframe

> Of course. vork on the right kind echnology also is a ter of finding the th to work. To that

> end. Wang says the best part of the book is the Dilbert Index - a rough guide to predict per good a company will be to work for

> "I asked Scott Ad ams (creator of the Dilert curtoon series) how to figure out if you are at a good compo

g," Wang says. Adams, in turn, proposed a gene If you go into a company and you see lots of Dil

of cartoons taped on the walls, you are in big oble, Wang says: It's a company that is "too revied up to be embarransed by its flows."

On the other hand, if you go to a company that as no Daibert curtoons adorning the walls, "it is

hably somewhat screwed up because it has no umor and can't arknowledge its flaws," Wang The key, Adams told Wang, is to find a company with just the right number of Dilbert cartoons dec-

Whether I have succeeded or not will be dete red by reader feedback," Wang says.

Earls is a freelance writer in Franklin, Mass

Book review: Guidebook to the

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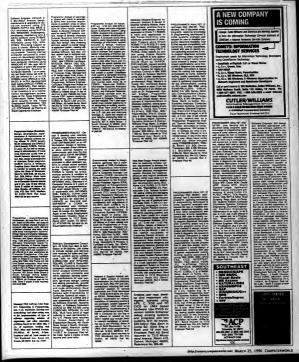
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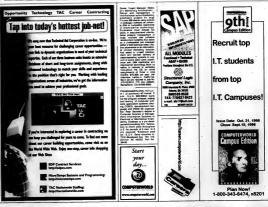
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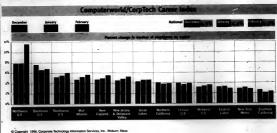
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Marketplace

Doing the power lunch

CIOs must deal with client/server application vendors that skirt them to reach the CEO

It's beginning to look a lot like the '70m we can catch your la-vorite episode of Felcome Back Ketter on Nickes Nite. but a polyester shirt and bell-botten jessa at the email and says a software salesperson counting your CEO over an expensive meal

When it comes to choosing client/serv-based francial applications, the decision is frequently being made outside the infor-

mation services departm "It seems that the CEO goes out to lunch with an SAP exec, has three martinis, and it's a done deal," says Jim Webber, head of Omicros, a consortium of East Coast-based information systems executives in Mountain-Lakes, N.J. "These decisions are being made at the top, without a lot of the disci-

plined cost/benefit analysis One analyst disagrees. "I think it's two martinis. But the SAP decision certainly seems to emanate from the top," says Barry Wilderman, vice president of application development strategies service at Meta

Group, Inc. in Stamford, Conn. IS managers and analysts alike agree that SAP America, Inc. in Wayne, N.J., has marketed its software to the executive suite so effectively that, quite often, neither IS nor the lines of business are in on the deci-

I get calls all the time from ClOs who say, 'Don't tell me whether I should have bought it or not; I had nothing to do with it. But now that I have it, how do I implement it?" says Bubby Cameron, a senior analyst at Forrester Research, Inc.

in Cambridge, Mass.

SAPs R/3, the leading enterprisewide fi nancials package, is a "take-it-or-leave-it" purchase: You buy the whole suite of integrated applications - from general ledger to accounts psyable - or none at all. Building on its integration strengths, SAP captured the imagination of senior manage ment to the tune of \$1.88 billion last year. Cameron says. Its closest competitor is Oracle Corp., with sales of \$700 million.

There is only one company, wender or otherwise, that has ever built a fully intograted, enterprisewide client/server application, and that's SAP." Cameron notes. "That was the fantastic dream of the last 15 years. SAP has delivered against that belief and has caught our fancy. Very conservative, centrally controlled applications make senior executives feel more comfortable."

Yet, SAP is winning over IS management. It has done so by fulfilling key functionality and technical requirements, such as the ability to handle high transaction volumes and do ad hoc reporting.

Baster Healthcare Corp. in Deerfield, III., had a list of more than 500 requirements for its re-engineering of legacy financial systems to a client/server environment, says Steve Van Kuiken, director of new product development and SAP project director His tram screened some 50 pack-

*SAP stood apart because of its breadth of functionality. Far and away, it met more of our requirements. It probably isn't as folly functional as our legacy app," he says, but because of the integration, we'll have less reconciliation of the numbers, and

we'll be able to close our books a lot faster." The deal maker will be transaction volme for J. B. Hunt Transport, Inc. in Low-

ell. Ark., which is gearing up to buy a client/server financial package. We produce 650 checks a night, and each check could have multiple invoices," explaints Kay Palmet, vice president of ap-plications at the company. Overall features and the vendor's financial stability and rep-

utation for service and support will also be

vortant Integration of the systems is imp but more from a user standpoint," she says.
"We need accounts receivable, accounts payable and general ledger to interface, and we need to be able to build our own interfaces between some systems." Godf in a freelance writer in New York.

PREPARATION CHECKLIST

en, make sure it isn't getting the job done. Don't confuse poor access to de to accomplish your goals by installing applications and back-end databases.

side whether the application will roll out across the entire con once or unit by unit.

X Look for integration with other applications: is the package fully integrations? # Analyze the vendor's financial performance, R&D strategies and long-to nitment to the product.

errow your choice to two wendors before you begin product testing and # Devise a checklist for technical criteria (i.e., is it fully into

offer on-line analytical processing? How strong is the data replica # Devise a checklist for functional crit multiple books in multiple languages for multiple currencies? Do you configurable ledgers? Is activity-based costing important? Can the pac generate scheduled invoices? Will users be able to do ad hoc reports?

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This comprehensive directory is organized by product/service categories for ease of use. And we provide a listing of important Internet-related articles appearing in Computerworld over the past few months that you can call for.

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By Tam Harbert

inding good investment information on-line presents the allenge of the la

"It's out there somewh The question is where," says Jim Jubak, senior financial editor of Worth magazine and author of The Worth Guide to Electronic Investing:

There are bundreds of inves on the leternet and the various on-line ser vices. For those interested in technology stocks, the problem is finding a way to sift out nontechnology related information.

For example, there is a plethors of infor mation on technology stocks in the Usenet newsgroups, such as misc invest, Jubak says. Recently, one newsgroup contained a

series of exchanges among investors and an engineer at Silicon Graphics, Inc. (SGI). That kind of information can provide valuable insight into a company. There was a wealth of technical detail

"I nere was a weath of technical detail there that I haiven't seen in any analyst's neports that cover the company," Jubak says.
To help him locate only technology related information, Jubak uses a 'newabot' program that works with his listeract service. The program can be set up to automatically log io to various newsgroups and scan for key words, delivering only relevant news

Jubak also recommends that investors check the World Wide Web pages of the top high-technology investment *unicers, in-cluding Hambrecht & Quist, Inc., Robertsoo, Stephens & Co. and Alex. Brown & Sons, Inc. These sites typically include re-ports from analysts and details on upcoming conferences. Knowing when an invest ment house is having a high-profile conference can be key information for an in-

vestor because technology stocks often rise or fall in reaction to news from a confer-

ence, Jubuk says.

And don't neglect the home pages of the companies in which you've invested. About 1200 public companies have home pages on the Web, 900 of which include investor inion, according to Carol Abrahams

outling firm in Mountain View, Calif. Abrahamson regularly acours the Interset for general investment sites and for npany home pages that contain investor clions information. Her consultancy pub es a quarterly newsletter for the inves tor relations departments of public compo

The amount and quality of investor infor-mation on company bome pages ranges from basic, such as a few press releases on

nings reports, to comprehensive mong the companies with the most comensive information is AT&T. D800 9875.

The company includes not only its annual report and quarterly updates, but also its fact book, a companion document to the an nual report that contains extensive details, such as executive biographics and lists of key customers. "These are the things that Wall Street needs to follow a company," she ootes. Companies typically print only a few thousand copies of their fact book and dis-tribute it to Wall Street and institutional in-

AT&T's site also includes a transcript of the chairman's annual meeting speech and a summery of the annual meeting votes. In general, telecommunications composes have good investor information on

em to be using technology to the limits," ahamson says. In coatrast, computer companies such as SGI and Sun Microsys-tems, Inc. are lightweight. "The investor coatest of their sites clearly isn't a priority.

Tips for researching on-line:

etcom, saa

B PRIORITYEE. Make a list of no more than so kinds of information you would like to access on-line, such as news headlines, quotes, analysts" mmendations, earnings estimate or Federal Reserve Board monetary policy. This list should reflect you investment style and goals, so be as specific as you can. For example, if you use technical analysis — looking at a stock's price and volume data from the past to predict future price wements - then historical price and volume data should be high on your list. But if you invest based on basic data, then earnings might be your first priority.

B EVALUATE. Just as impurtant as the quality and quantity of information is the structure of the site. Even a site with great information can overwhelm you unless it provides tools to separate the useful from the useless.

building an on-line investment system is always a work in progress because new resources are constantly coming on-line. Information that everyone knows is less valuable than information that is lesser known and can provide a temporary edge.

(Excerpted from The Worth Guide to Electronic Investing, Harper Collins, \$16.)

Ortpullware computerworld.com) MARCH 25; 1996 COMPUTERWORLD

The Week in Stocks



Netcom or 'netgo'?

As AT&T Corp. (NYSE:T) and MCI Communications Corp. (NASDAQ:MCIC) enter the Internet access market, the stock of the early durlings of Internet access have fallen. How will one of the pioneers, Netcom On-Line Come (NASDAQ:NETC), fare?

Rakesh Sood, a technology analyst at Hambrecht & Quist, Inc. in San Francisco, has a hold on the stock. The price of Internet access has dropped to near zero with the entrance of AT&T and MCI, both of which offer five hours of free Internet

access to their telephone subscribers. To balance usage, Netcom needs more but But the company recently reported that the proportion of its revenue derived from corporations has dropped from 18% to Sood says. To increase corporate business, Netcom must beef up the extent and speed of its network, he says.

has pushed out profitability from the beginning of 1997 to the middle of 1996," Sood says. The combination of higher expenditures and lower margins

But Charles Finnie, an analyst at Volpe, Welty and Co. in San cisco, rates the stock a strong buy.

"The fear, uncertainty and doubt surrounding the new AT&T service has caused a market overreaction, sending Netcom's orice lower than it should be," he says. Finnie says AT&T

seems unprepared to service Internet customers.

And Netcom in a potential takeover target for larger cor nies that are entering the Internet access market, he notes

- Tam Harbert and Stewart Deck

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REV high Client/Every Sain 22 — Institutes for Secures. When the Froit-Normal has (Ph.N) of Chape model a client/ever-pricionel provise descent age and contens with transferance such to their account, it mend to behard, Delight, the first solution. Delight Client/Gerer Sain are and in their circuits for except the FPW Monte 2000 Perkulong Carl application. This application above a proposed offers in a very large and application. The proposed of the proposed offers in a very large and offers in a very large and application. The proposed of the proposed offers in a very large and application in part of the proposed information Monte Pr

Gracehal sealing acress databases. The beauty of Borland's client/server tools is that they allow you to build applications that meet changing business requirements. With the

built in SQL Links capubilities in Delphi, users can readily access all of the most popular SQL databases, including Oracle, Sybase, Informix, Microsoft SQL Server, and Intelligence "FNB built their applications on the Intelligence database and found it to be the easiest SQL server to install, use, and maintain.

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provides all the tools for professional client/server development including a Data Dictionary, Object Repository, SQL Monitor, Visual Form Inheritance, integrated Version Control, and more. Two dor's law to choose between productivity and performance, or power and flexibility anymore.

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Opposit C 800 Deleted believes that All rights recorded the Market product common or malitages of Berland between the 20 Kin."

thers armed with Slicon

weather according

to Mark Mortland.

the lead programmer

on the Swift project.

Previously, these

tasks were per-

Later this year

Southwest will add

other applications to

light planning, main-

lenance and other

functions, said Marty

Cephart, a system

\$2.9 billion carrier.

Chain reaction To day, Swit has re-

abled Southwest's

DESECTIONS

dispatchers to re

engineer and a Swift

ect leader for the

formed manually.

Graphics, Inc. Indigo II worksta-

tions are now able to click onto

Motif buttons to calculate how

much fuel is needed for a flight or

to route a plane around bad

Swift to. address

CONTINUED FROM PAGE 1

ared with the \$1.2 million in shrink-wrapped software that wendors pitched to Southwest - proposals that didn't include system interfaces to the airline's reservations and maintenance systems. Most airlines already use linear mming technologies to op-

timize flight and crew schedules, 'but there's a lot more that airlines can do with technology to improve upon these processes," said Mark Shields, a principal in the aviation practice at Mercer Management Consulting in Wash ington. Unlike competitors such as United Airlines, which manages multiple aircraft types across international regions, Southwest flies only Boring 737s on domes

Perfect fit As such, Southwest would likely gain more from automating its flight planning activities than most airlines "since it has a formula that plays on simplicity.

Shielda added. The airline is hoping to do just that, its project, called the Southwest Airlines Interrated Flight Tracking System (Swift), is a set of Unix Motif-based programs

that the airlines' 37 disputchers Data warehouses CONTINUED FROM PAGE 1

learn about data warehouses at a very reasonable cost and see what benefits it will bring to your corporation," said William Parkey, chief information officer at Agway Inc. in Syracuse, N.Y. The company uses a relatively small 15G-byte data warehouse based on NCR hardware to build customer profiles for its sales and routers began using last fall to track 2,200 daily flights. The systems were built using Cam-bridge, Mass-based Integrated Computer Solutions, Inc.'s Builder Xcessory tool.

Southwest has been awarded the U.S Department of Transportation's 'Inple (ruwn' four years running

Ontime performance (Percent of total flights that were on time! 82.1%

80.7% IIS Ave 70.85

every 100,000 passe Southwest -21

.52 Lost laggage per every

4.75 4.60 AMPRICA WICE 670

ences and the money a customer

A data warehouse is a large re-

pository of highly refined infor-

mation relating to a corporation's business core that is called from a

nd go-day

spends on Agway products.

from canceled or delaped flights 20 times faster than it could using manual tech-For example, if a 2 p.m. arrival into tive edge. See page 51.

rots can access and can tomize the warehouse. It contains multiprocessor hardware platforms-that run several lavers of

force. Using information from the data warehouse, an Agway sales above software representative can quickly build Typically, setting up data warecustomer profiles that show nurouses has been expensive. chasing patterns, product preferor-consuming and resource hopping, said Ken Rudin, an ana-

lyst at Emergent Corp., a consu icy in San Mateo, Calif. "One of the things that is most important with the NCR program is the concept of a scalable database where variety of sources. Different user people have the ability to start

small and then grow rapidly to a full production system," he said. That approach will belo meet

minimize the risk and expos of going to a new technology like data warebousing," said Howard Richmond, a vice president at Gartner Group, Inc. in Senta Clara, Calif.

Houston is going to be 20 min late, the dispatchers and routers can click on a series of Motif but

tons to figure out how that will af-

fect the outgoing 4 p.m. flight and connecting flights for passengers.

ephart explained. Prior to Switt, dispatchers and

routers had used a 17-ft-long flow

sheet that contained all of South west's daily flight information

Although they had become profi-

cient at scanning the flow sheet.

dispatchers and routers often

took up to 15 minutes to check

the airline's reservation system

and passenger lists before coming

"We were missing opportuni-

up with a set of rerouting options.

lies to pretect the customer be-

cause there was so much data to

look for" on the flow sheets, said

Dave Jordan, director of flight dis-

But by using their Indian II

workstations, stuffers can now get

that information in just 15 sec-

onds by accessing a Sybase. Inc

10.0.2 relational database man

agement system through Hewlen

flights last year after expands

its arsenal from 191 planes to 220

looking to maintain a compel-

Packard Co. K400 servers.

aircraft in 1995.

Trial rus Under NCR's program, corpora tions can evaluate data warehous-ing on a trial basis for \$30,000 to \$50,000. The 15-day program lets organizations build a prototype with their own data by using NCR hardware, relational databases

and onery took NCR will also help first-time users set no fully functional departmental warehouses under a guar-anteed fixed-fee program.

NCR will work with companies to pull together information that will go in the data warehouse, transform the data as required. build a client/server user interface and install the hardware

That program starts at area \$800,000 and comes with a 90-day rotation guarantee that projects users from cost over runs, according to Robert Don ald, assistant vice president of marketing at NCR

Scheduler links Unix. NT. host

By Bob Francis

Data center managers who bemoan the dearth of enterprisewide job scheduling tools will get a new option next month when Platinum Technology, Inc. announces AutoSys 3.3. AutoSys is a job scheduli

product that runs on Unix and Mi crosoft Corp,'s Windows NT plat forms. The new version will include integration with Zelo: MVS a widely used mainframe job scheduler that Platinum also

Later versions will link with other mainfranc job schedulers. said Chip McAvoy, vice president of Platinum's AutoSys group in Oakbrook Terracy. III.

That speed is critical to Southwest, which added 300 daily Integrating job schedulers with mainframe applications gives in formation systems managers the ability to quickly move jobs com-The largest U.S. Insurer is also pleted on one platform to another explained a beta user of AutoSys. 3.3 at a major West Coast telecon

munications company Currently, system ad tors have to set up alerts that indicate when one platform has completed a job so they can send it to another platform. The integrat of Zeke MVS and AutoSys allows that to happen automatically, McAvoy said Some applications, such as SAP

AG's R/3 and Legato Systems. Inc.'s Legato, include their own job schedulers, so future versions of AutoSys will integrate with those as well. McAyov mid. Other features of AutoSys 3.3 include time asse support and the ability to communicate with other AutoSys environments in other lo

At Networld/Interco '96 pent week, Platinum will announce that three of its product lines have been certified to work with Hew Sett-Packard Co.'s OpenView IT/ Operations console. That means IS managers can access Plati

num's AutoSys, along with its DBVision and ServerVision performance management tools from HP's operations conse Platinum is projecting revenue of \$300 million this year and now

has more than 2,000 employees. worldwide. Platinum also readles POE

ers get the following at each price point with NCR's scalable data warehouse program Price: \$800,000 and up Price: Depends on project size

South U.S. Dopat

Price: \$30,000 to \$50,000 . 15 days of on-site training Plan for moving to a production environment ing informations and data

· Evaluation of hardware

Relational database and querylanalysis tools

· Data warehouse looks

Multiprocessor hardware and database software

on and di

Partner referral services

ets warehouse databas

management. See page 57. MARCH 25, 1996 COMPUTERWORLD

Fault lines beneath Unix's terra firma

Charles Babcock

nor-UX. Siemens Nixdorl's Sinix

and Cray Research's Unicos. And

while we're at it, let's throw in

Unix from Data General.

UniForum in February? Yes, but some one in the Unix nematity plant a of the most imporin the und and orge didn't show up

rone to rally around a 64-bit of the operating system? There's no better time to close taks than when you have to conup and called for support for a future 64-bit Unix, called Summit vince a lot of users that a change 3DA, that they will

Moving to 64-bit Unix would be enhanced if users were guaranteed that it would run a broad set of applications, regardless of the rand name on their hardware.

As a matter of fact, all Unix vendorn could adopt a common, se because a lot of the work already has been done. Remember the Open Software Founds tion? It produced a core set of code and specifications around which a 64-bit Unix could be built. Digital adopted them and spent millions to build its Digital Unix

Wait a minute. Wasn't there also an attempt to raily the troops at



HP and SCO promise to com-

Noe three operating system

DIRLIN SCO's OpenServer and

what used to be Novell's Unix-

Ware) into one, and together they

hail this move as a step toward

It is a stro - a baby step. A lot

of Unixes still must be consolidat-

ed. They include Sun Microsys-

tems' Solaris, IBM's ADL Sequent

Computer Systems' Dynix/ptx

Silicon Graphics' Irix and NCR's

Unix System VR4, just for start-

ant Unix. HP Convex Technology

Center's Scalable Parallel Proces-

es. Or consider Pyramid's Reli-

ated Unix.

The Meta View

With two steps forward and one back the Unix community lurches forward

speaking from Sun's newfound strength in supplying the lawith hard and World Wide Web developers with the Java programming

For their part, Digital and Silicon Graphics have at

least a year's lead on the others with their 64-bit Unix offeri and they are unlikely to give up that lead

Both are cashing in on the de-IBM and Digital sent low-level representatives to the HP/SCO sire of large user sites to build big press conference that announced database transaction processing commit and gave it their thin overems and data warehouses Digital and Silicon Graphics blessing, but the two have rehave a competitive advantage. Sixty-four-bit Unix gives a commained silent about when - if ever - they would adopt such a em the capacity to adwas 14G butes - in the case of

Digital Unix - or enough to han die the largest applications with room to see It has a theoretical capacity of 16.7T bytes, and even the most

And McNealy is ambitious users are a long way from depleting that. Thirty-two-bit systems, which include all other Unix offerings, usually address 2G bytes for application Informix and Oracle under

stand the appetite for very large database applications and have resed parallel versions of their systems to run on multi servers from Digital and Silb

ongoing finaures within the frac-tions Unix community. Each of the Unix vendors represents a set of initiatives, and together they represent a kind of divisive strength. In its variety, the Unix mity keeps innov

But I hope its members keep an eye open for the chance to find more common standards and shared APIs. In this fashioo, with two steps forward and one back, the Unix community can lurch toward greater harmony.

Babcock is Computerworld's tech nical editor. His Internet address is charles_babcock@cw.com.

melio. Gates kiss Blamey stone The blarney must have been flying on St. Patrick's Day in Seattle when new Apple Chairman and CEO Gilbert Amelio met informally with his Microsoft counterpart, Bill Gates. The meeting of the two book authors was initiated by Apple as a gesture to repair the decade-long se/hate relationship between Apple and its biggest third-party software developer. Hopefully, the green beer ed things over, because Wall Street wags suggested that Amelio consider borrowing some big bucks from billionaire Bill. That's because Apple is expected to post a whopping \$200 million loss for the current quar-ter, which ends this week.

Andreessen red-faced over home page

Cruise to Marc Andreessen's home page, and you're in for a big disappointment. The Netscape Communications co-founder has adorned http://home/netscape.com/ le/marca/index.html with nothing but a big image of his face, inerenticably tinted red, And that's it. Nothing else. No text, no interactivity, no cool Java applets like you'd expect. When we sent electronic mail to Marc asking for an explanation. "I've been busy" was the reply.

teep learning curve

Novell is joining other major vendors by focusing on Internet services, but the company still has a way to go to carry it out. Novell admitted that its Web-based registration for its annual BrainShare conference last week didn't go as planned. Novell's Web servers receiving the information didn't support Multipurpose Internet Mail Extension (MIME) attachments (an Internet standard). making it pretty hard to process the attached registration forms. And for those users trying to register via

We outshipped SCO, IBM and HP combined. For [HP and SCO] to try to do something without Sun involved - it won't happen." CompuServe, the on-line service's mail doesn't support
URL. Users can then share and after presentations or
MIME either.

Sun's Scott McNealy was open-

ly defiant in a UniForum keynote.

It's not nice to fool ESPN

Two Stanford University students lost their university commuter system privileges last week after they tried to rig a contest on ESPNnet (http://espnet.spo com). According to a story posted at the site, the stodents, one an electrical engineering major and the other a computer science major, swamped the polling system with votes and locked out others trying to cast ballots in the Battle of the Mascots contest

lew Web software talks the talk

PictureTalk in Pleasonton, Calif., is announcing softwa that lets users share presentations over the Web. Users download free client software and then, while participal ing in a conference telephone call, log in to the name

The 5th Wave by Rich Tennant



White House 'de'-coupled

Efforts to restrict internet access often backfire. A filter designed to block kids from finding many surprises emed Bill & Hillary and Al & Tipper obscene. The mesake tool from SurfWatch Software in Los Akos, Calif., blocked access to the White House home page because it contained the word "couples.

Smelly Cat' fools phone security The Internet mailing list Best of Security last week warned that singing voices can fool telephone tone-

detection equipment. It seems a man played Hare Krisbna chants into his girlfriend's answering machine and the machine replied, "Enter access code for remote oper ation." Someone else reported that his answering ma-chine thinks that Lies Kudrow and Chrissie Hynde sing ing harmony on "Smelly Cat" sounds like an asterisk, or end-of-message signal. "Maybe the machine just has taste," he suggested.

FBI agents arrested a former IS staffer at Philip Morris and charged him with masterminding an elaborate scheme to defraud eight banks of \$323 million in leans for an lesed "secret" Philip Morris project to deselop an alterno tive to ciscrettes. Edward I. Reiners, 51, is believed to have worked with a female accomplice under the fraud scheme known as Project Stor, in which Reiners told lending banks the money was to be used to lease computers to de rette alternatioe. Reiners left Philip Morris' IS group four years age. If you want to drop a dime on an IS m ager gone had, call our crime-stoppers hat line at (508) 820-8555. If you don't have a dime, call (800) 343-6474. eun editor and part-time detective Patricia Keefe can be reached at (508) 820-8183 or via the Internet at

IS ALL TCP/IP ALIKE? CUT IT OUT.

COMPARE	DeNot Family	ChamalousMFS v4.6	LAN Workplace 5.0
Single solution that works with Windows' 95, Windows IE; Windows' 3.1 and Windows'' for Workgroups	TES	80	100
Contemizable, intelligent install addresses user requirements	TES	100	. 80
Optimizes your network connections with advanced 32-bit TCP/IP YeD kurnel	TES	100	100
Views, prints, corvers decreases and graphics without originating applications (ET show!)	TES	100	NO
Automatic network connection from the road or office (IP Switching)	TES	90	- 110
High-speed connectivity to seyons, seywhere (ISDN, X.25, CBPD)	YES	Perfei	80
Dynamic actuack connectivity with network rooter discovery and rooter fullback	TES	100	100
Advanced network truebleshooting tools keep you cannot de .	TES	Pertial	TES
Automotic scripting allows sess, one-click access to your most imposed connections	YES	80	100
Protects rehealth data with interest firewell support for year PC (SSI, SOCIES, AME, others)	TES	80	100
increases desires flexibility by allowing you to ran Metware applications over IP	YES	100	TES
Soundersily coexists with other enterprise networks (Nor8005, Vines, IPT/SPT)	TES	100	, TES '
Single reader for best occoss, resource sharing, transport, interset client and server with a worldwide substant support argustration	YES	100	Pertial

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